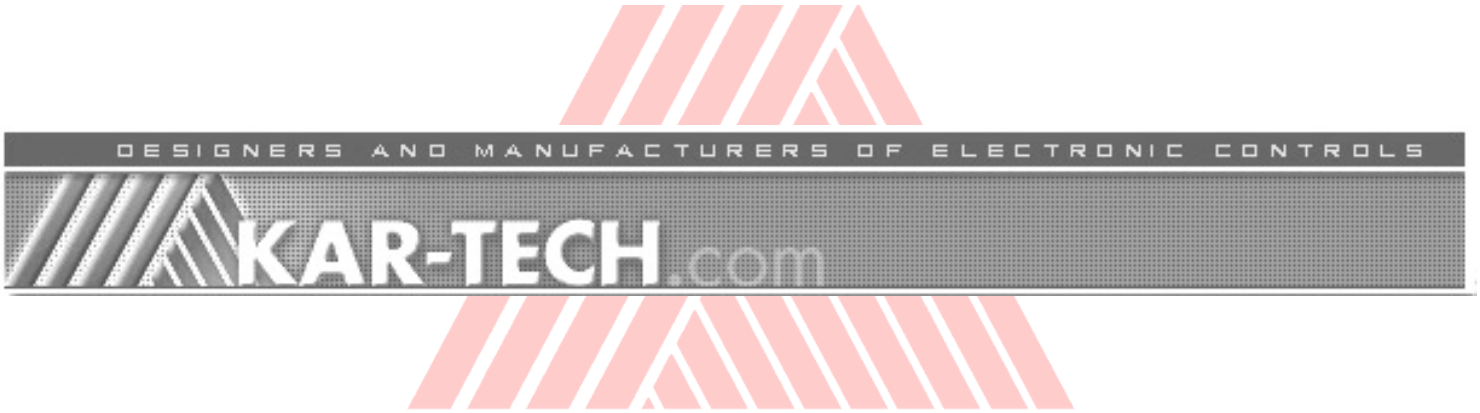

PROGRAMMABLE MINI™

5 & 8 BUTTON RADIO REMOTE CONTROL SYSTEM

INSTALLATION AND OPERATION MANUAL

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INDEX

DESCRIPTION

The MINI REMOTE is a state of the art microprocessor based Radio Frequency (RF) control system. It will provide the operator the ability to remotely operate equipment. The operator is required to follow all OSHA www.osha.gov safety standards when operating the equipment.

This system is designed with Frequency Hopping Spread Spectrum (FHSS) and Phase Lock Loop (PLL) technology for the optimum performance in radio remote products.

The programmable **MINI**™ provides the user freedom to configure any or all outputs as momentary, latched, or disabled with additional capability of dump/pump or e-stop behavior as needed. Configuration is easily entered through the transmitter keypad and the system can be re-configured as often as needed.

The remote control system consists of two components: the ergonomically designed **MINI**™ transmitter and the equipment-mounted receiver module.

The remote control system consists of two components: the ergonomically designed MINI™ transmitter and the equipment-mounted receiver module.

The transmitter is designed with a 5 or 8 button sealed membrane keypad (depending on model), a red diagnostics

LED and a green transmit LED. Two AAA alkaline batteries power the transmitter. How often the transmitter is used and how long it is used each time determine the operating life of the battery. To conserve battery power, it is designed to shut off after 15[1] minutes if no buttons are pressed.

The receiver is designed with 4, 8, or 9 solid-state on/off outputs (depending on model) and red/green LEDs for diagnostics. The diagnostic LEDs can be seen by removing the four screws of the receiver cover.

TRANSMITTER AND RECEIVER SYNCHRONIZATION

Each radio transmitter is preprogrammed with a unique radio ID code. Each receiver is programmed to respond only to the radio transmitter with the ID code for which it is set. This feature allows multiple systems to work in close proximity to one another without interference. In the event that a transmitter becomes damaged and a new one is needed, the receiver can be reprogrammed to respond to the new radio transmitter. To *teach* the ID code to the receiver, use the following procedure:

1. Remove receiver cover

2. Apply power to the receiver

1 Can be changed by user – see section SLEEP TIME in this manual

3. Place a jumper across the address code jumper inside the receiver. Both green and red LEDs will toggle inside the receiver. Remove the jumper and store it on one pin

4. To get the transmitter into *TEACH ID* mode, press and hold the POWER button, button 1 and button 8. At this point, both LEDs will blink on the transmitter

5. Release the POWER button and wait for 1 second or until the green and red LEDs stop toggling in the receiver. Release the other buttons

6. Teach complete

7. Replace the cover on the receiver

TRANSMITTER CLONING

If it is desired to use multiple transmitters with one receiver, each transmitter must have the same ID code[2]. To *clone* the ID from one transmitter to another, use the following procedure:

1. On transmitter A (the teacher), press the POWER button, button 1, and button 8 simultaneously. At this point, both lights will flash on the first transmitter.

2. On transmitter B (the learner), press the POWER button to turn it on, then press buttons 2, 3, 4 and 8 simultaneously, Both green and red LEDs will begin flashing

2 This practice is not recommended by Kar-Tech due to safety issues

3. Release buttons and wait for 1 second or until the green and red LEDs stop flashing on both units

4. Turn the transmitters off

5. Teach the new ID code to the receiver using the synchronization process described earlier

6. To undo the cloning of transmitters, simply change the ID code on one of the transmitters. See procedure below

CHANGING TRANSMITTER ID CODE

This procedure is mainly used to un-clone a transmitter, returning it to separate operation (1 transmitter controls 1 receiver). If this is desired, use the following procedure:

1. To get the transmitter into *CHANGE ID* mode, press and hold button 2, button 3, and button 8 and POWER button. At this point, both LEDs will toggle on the transmitter

2. Release all buttons

3. Briefly press any button except POWER to select new ID

4. Change ID complete

5. Teach the new ID code to the receiver using the synchronization process described earlier

INDICATOR LEDs

The transmitter has two LED indicators. The green LED indicator blinks rapidly

whenever there is communication between the transmitter and the receiver.

The red LED indicator starts blinking once every second when the battery voltage is low and requires replacement. It also blinks when there is a problem with the system in the form of an error code. Refer to the ERROR CODE CHART in this manual more information.

Note: To check for low battery, turn the receiver off and leave the transmitter on. If the transmitter red LED continues to blink, the battery is low and requires replacement. If the red LED blinks only when the receiver is on, count the number of blinks and refer to ERROR CODE CHART section of this manual for additional information.

OUTPUTS

The receiver has 4, 8, or 9 ON/OFF outputs (depending on model) that supply power when the corresponding transmitter button is pressed.

Each of the outputs from the receiver module is designed with built-in short circuit and overload protection. The outputs can also detect a no-load or broken wire condition.

These error conditions are evident by the red LED indicator on the transmitter or on the receiver module.

The outputs will indicate an error under no load or broken wire status if NOT activated, and will detect a short IF activated.

OPERATION

Press and hold the power button on the transmitter until both LEDs turn on, then release. The green LED will flash rapidly when communication has been established. When the receiver is off, the green LED will flash slowly indicating this. With the receiver on, press the corresponding buttons on the keypad to turn on and off each of the outputs.

FEATURES

The user can determine output functionality and program the system to respond as desired. This is determined by a sequence of commands entered using the transmitter keypad.

Level 1 allows the user to define which outputs will be momentary, latched, and/or disabled.

Level 2 allows the user to specify one of three overall functional modes of operation:

1. Configured for STANDARD 4-output or 8-output (depending on model) operation
2. Configured to use output 4, 8, or 9 (depending on model) as a DUMP/PUMP function
3. Configured to use output 4, 8, or 9 (depending on model) as an E-STOP or “heartbeat” function

When the system is configured for STANDARD operation, any of the outputs

can be configured for momentary, latching, or disabled function.

When the system is configured with the DUMP/PUMP function, the last output will turn on when any of the buttons selected to use DUMP/PUMP are pressed.

When the system is configured with the E-STOP or “heartbeat” function, the last output will remain on as long as the communications link is active. If the link is lost for longer than 2 seconds, or if the POWER/E-STOP button is pressed, the system will shut off all outputs and they will remain off until transmitter buttons are pressed again.

It is important to note that the system must be programmed initially at both Level 1 and Level 2 for proper operation. This may or may not be done at the factory. Refer to the PROGRAMMING OUTPUTS section of this manual.

SLEEP TIME

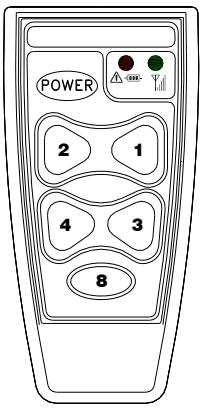
The transmitter is factory set to turn off (sleep) after 15 minutes. To change the time the transmitter waits before going to sleep, use the following procedure:

1. On the transmitter, press and hold POWER and buttons 3, 4, and 8
2. Release the buttons. At this point, both lights will blink once per second
3. On the transmitter, press one of the following buttons to adjust the sleep time:
    a. 1 = 15 min
    b. 2 = 30 min
    c. 3 = 1 hr
    d. 4 = 2 hr

e. 8 = sleep disabled

4. Sleep time programming complete

PROGRAMMING THE 4-OUTPUT MINI SYSTEM



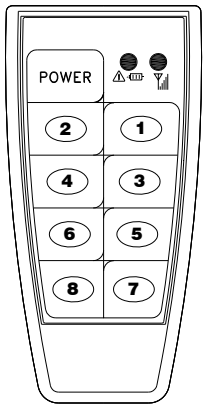
1. Turn the receiver off. Turn the transmitter on (press and hold POWER until both LEDs turn on, then release)
2. Press and hold 1, 4, and 8 and release. Red LED should be blinking on the transmitter
3. Turn the receiver on. Be sure all outputs are connected to a load and that there are no error codes present (NOTE: outputs may cycle on and off while programming)
4. Are any outputs to be latched (push on/push off)? If yes, continue. If no, skip to step 6
5. One at a time, press and hold each button 1-4 corresponding to output 1-4 that is to be latched, until the green LED goes on, then off
6. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
7. Are any outputs to be disabled (no output and no error code)? If yes, continue, if no, skip to step 9
8. One at a time, press and hold each button 1-4 corresponding to output 1-4 that is to be disabled, until the green LED goes on, then off
9. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
10. Is it desired to use the pump or e-stop functionality (see descriptions below)? If yes, continue, if no, skip to step 15
11. To engage the pump functionality, press button 1 until the green LED goes on, then off. Alternatively, to engage the e-stop functionality, press button 2 until the green LED goes on, then off

12. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
13. If e-stop functionality was chosen, skip to step 16. If dump functionality was chosen, continue
14. One at a time, press and hold each button 1-3 corresponding to output 1-3 that is to be associated with the pump output, until the green LED goes on, then off
15. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
16. Programming complete.

NOTES

1. When using Pump or E-Stop functionality, do not disable output 4
2. Pump functionality: output 4 will turn on with any outputs that have been associated with it
3. E-stop functionality: output 4 will be on as long as the transmitter is on. If the transmitter is turned off, POWER is pressed, or it goes out of range, output 4 will go off along with all latched outputs. Turn the transmitter back on and re-engage outputs to continue
4. If pump or e-stop functionality is chosen, output 4 will be used for this. Button 4 on the transmitter will then have no function. A maximum of 3 outputs can be controlled with the transmitter buttons
5. If 4 blinks after each sequence is not seen as described above, the programming was not accepted for that section. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming
6. Button 8 has no function when linked to a 4-output receiver. If it has been linked to an 8-output receiver, it will control output 8

PROGRAMMING THE 8-OUTPUT MINI SYSTEM



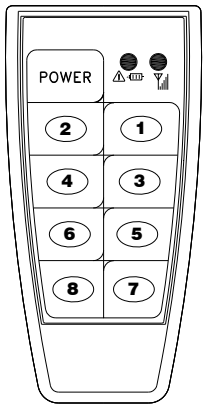
1. Turn the receiver off. Turn the transmitter on (press and hold POWER until both LEDs turn on, then release)
2. Press and hold 1, 4, and 8 and release. Red LED should be blinking on the transmitter
3. Turn the receiver on. Be sure all outputs are connected to a load and that there are no error codes present (NOTE: outputs may cycle on and off while programming)
4. Are any outputs to be latched (push on/push off)? If yes, continue. If no, skip to step 6
5. One at a time, press and hold each button 1-8 corresponding to output 1-8 that is to be latched, until the green LED goes on, then off
6. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
7. Are any outputs to be disabled (no output and no error code)? If yes, continue, if no, skip to step 9
8. One at a time, press and hold each button 1-8 corresponding to output 1-8 that is to be disabled, until the green LED goes on, then off
9. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
10. Is it desired to use the pump or e-stop functionality (see descriptions below)? If yes, continue, if no, skip to step 15
11. To engage the pump functionality, press button 1 until the green LED goes on, then off. Alternatively, to engage the e-stop functionality, press button 2 until the green LED goes on, then off
12. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance

13. If e-stop functionality was chosen, skip to step 16. If dump functionality was chosen, continue
14. One at a time, press and hold each button 1-7 corresponding to output 1-7 that is to be associated with the pump output, until the green LED goes on, then off
15. Press POWER briefly. The receiver red LED should blink 4 times, indicating acceptance
16. Programming complete.

NOTES

1. When using Pump or E-Stop functionality, do not disable output 8
2. Pump functionality: output 8 will turn on with any outputs that have been associated with it
3. E-stop functionality: output 8 will be on as long as the transmitter is on. If the transmitter is turned off, POWER is pressed, or it goes out of range, output 8 will go off along with all latched outputs. Turn the transmitter back on and re-engage outputs to continue
4. If pump or e-stop functionality is chosen, output 8 will be used for this. Button 8 on the transmitter will then have no function. A maximum of 7 outputs can be controlled with the transmitter buttons
5. If 4 blinks after each sequence is not seen as described above, the programming was not accepted for that section. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming

PROGRAMMING THE 9-OUTPUT MINI SYSTEM



1. Turn the receiver off. Turn the transmitter on (press and hold POWER until both LEDs turn on, then release)
2. Press and hold 1, 4, and 8 and release. Red LED should be blinking on the transmitter
3. Turn the receiver on. Be sure all outputs are connected to a load and that there are no error codes present (NOTE: outputs may cycle on and off while programming)
4. Are any outputs to be latched (push on/push off)? If yes, continue. If no, skip to step 6
5. One at a time, press and hold each button 1-8 corresponding to output 1-8 that is to be latched, until the green LED goes on, then off
6. Press POWER briefly. The receiver red LED should blink, indicating acceptance
7. Are any outputs to be disabled (no output and no error code)? If yes, continue, if no, skip to step 9
8. One at a time, press and hold each button 1-8 corresponding to output 1-8 that is to be disabled, until the green LED goes on, then off
9. Press POWER briefly. The receiver red LED should blink, indicating acceptance
10. Is it desired to use the pump or e-stop functionality (see descriptions below)? If yes, continue, if no, skip to step 15
11. To engage the pump functionality, press button 1 until the green LED goes on, then off. Alternatively, to engage the e-stop functionality, press button 2 until the green LED goes on, then off
12. Press POWER briefly. The receiver red LED should blink, indicating acceptance

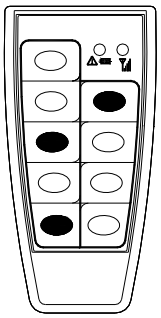
13. If e-stop functionality was chosen, skip to step 16. If dump functionality was chosen, continue
14. One at a time, press and hold each button 1-8 corresponding to output 1-8 that is to be associated with the pump output, until the green LED goes on, then off
15. Press POWER briefly. The receiver red LED should blink, indicating acceptance
16. Programming complete

NOTES

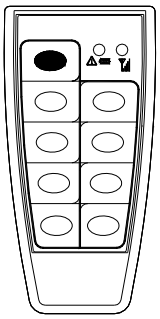
1. Pump functionality: output 9 will turn on with any outputs that have been associated with it
2. E-stop functionality: output 9 will be on as long as the transmitter is on. If the transmitter is turned off, POWER is pressed, or it goes out of range, output 9 will go off along with all latched outputs. Turn the transmitter back on and re-engage outputs to continue
3. If the receiver does not blink the red LED after each sequence as described above, the programming was not accepted for that section. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming
4. If a blink after each sequence is not seen as described above, the programming was not accepted for that section. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming

PROGRAMMING EXAMPLES, 8-BUTTON

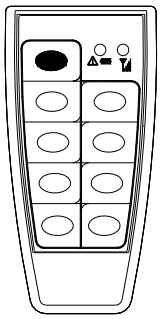
8-MOMENTARY OUTPUTS



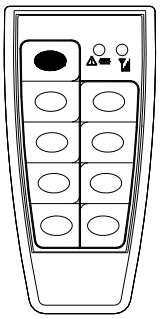
1. PRESS 1,4,8 TO GET INTO CONFIGURATION MODE



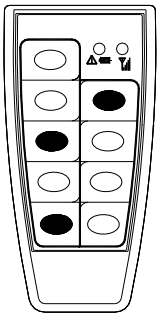
2. PRESS POWER TO SET ALL OUTPUTS AS MOMENTARY



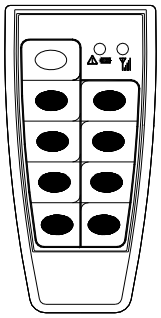
3. PRESS POWER TO DISABLE NONE



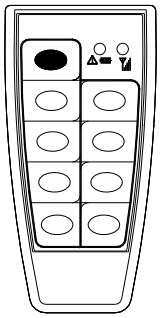
8-LATCHED OUTPUTS



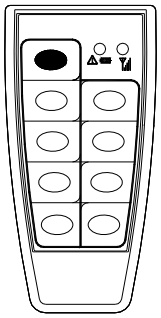
1. PRESS 1,4,8 TO GET INTO CONFIGURATION MODE



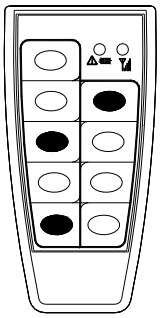
2. PRESS ALL 8 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED



3. PRESS POWER TO SEND SETTINGS TO RECEIVER

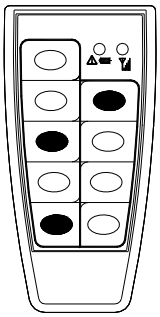


4. PRESS POWER TO DISABLE NONE

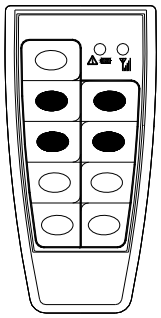


5. PRESS POWER TO SELECT NORMAL MODE

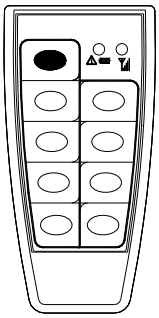
4-MOMENTARY, 4-LATCHED OUTPUTS



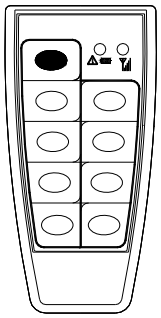
1. PRESS 1,4,8 TO GET INTO CONFIGURATION MODE



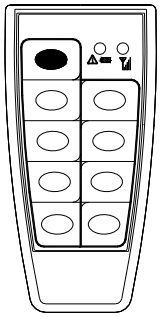
2. PRESS 1ST 4 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED



3. PRESS POWER TO SEND SETTINGS TO RECEIVER

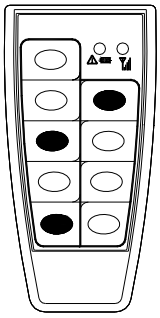


4. PRESS POWER TO DISABLE NONE

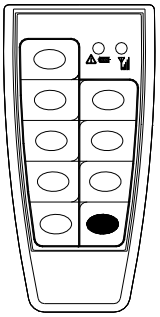


5. PRESS POWER TO SELECT NORMAL MODE

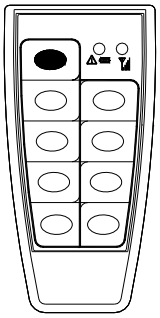
6-MOMENTARY WITH DUMP, 1-LATCHED



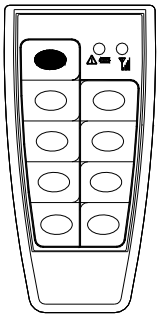
1. PRESS 1,4,8 TO GET INTO CONFIGURATION MODE



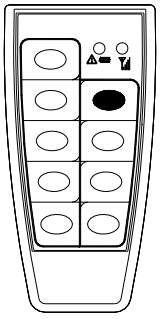
2. PRESS BUTTON 7, WAITING FOR THE CONFIRM LED



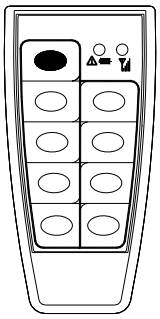
3. PRESS POWER TO SEND SETTINGS TO RECEIVER



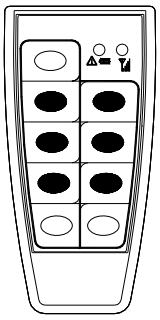
4. PRESS POWER TO DISABLE NONE



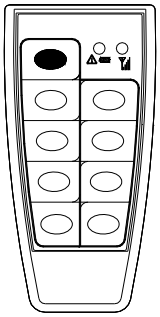
5. PRESS BUTTON 1 TO ENABLE DUMP FUNCTION



6. PRESS POWER TO SEND SETTINGS TO RECEIVER

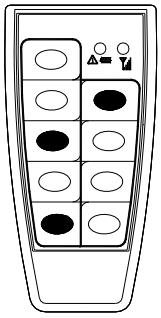


7. PRESS 1ST 6 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED

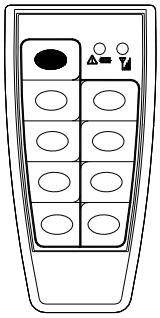


8. PRESS POWER TO SEND SETTINGS TO RECEIVER

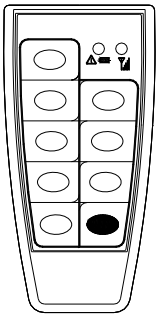
6-MOMENTARY OUTPUTS WITH E-STOP



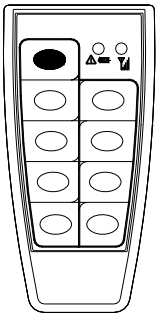
1. PRESS 1,4,8 TO GET INTO CONFIGURATION MODE



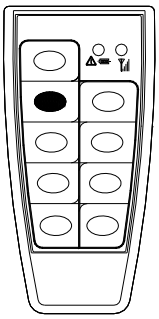
2. PRESS POWER TO SET ALL OUTPUTS AS MOMENTARY



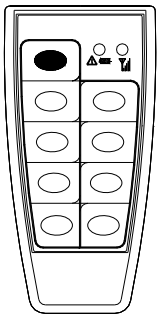
3. PRESS BUTTON 7 TO DISABLE OUTPUT



4. PRESS POWER TO SEND SETTINGS TO RECEIVER



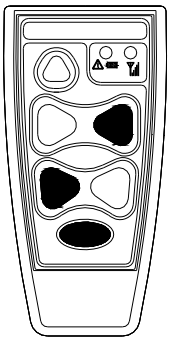
4. PRESS BUTTON 2 TO SELECT E-STOP FUNCTIONALITY



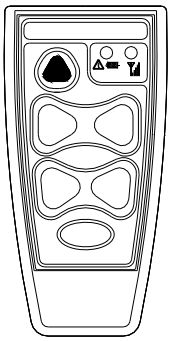
5. PRESS POWER TO SEND SETTINGS TO RECEIVER

PROGRAMMING EXAMPLES, 5-BUTTON

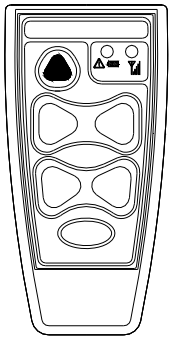
4-MOMENTARY OUTPUTS



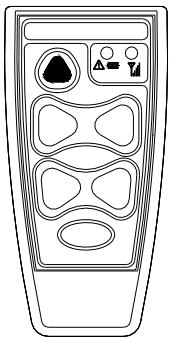
1. PRESS 1, 4, 8 TO GET INTO CONFIGURATION MODE



2. PRESS POWER TO SET ALL OUTPUTS AS MOMENTARY

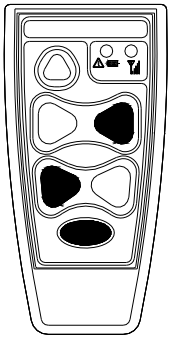


3. PRESS POWER TO DISABLE NONE

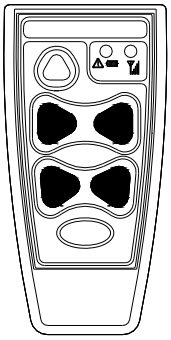


4. PRESS POWER TO SELECT NORMAL MODE

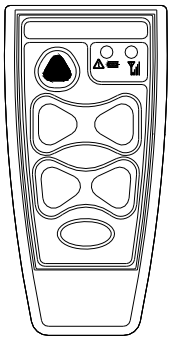
4-LATCHED OUTPUTS



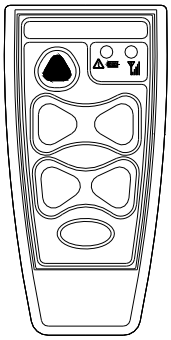
1. PRESS 1, 4, 8 TO GET INTO CONFIGURATION MODE



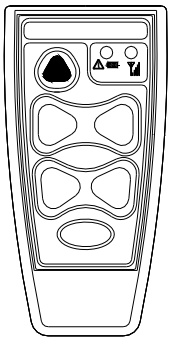
2. PRESS ALL 4 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED



3. PRESS POWER TO SEND SETTINGS TO RECEIVER

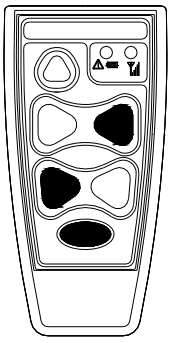


4. PRESS POWER TO DISABLE NONE

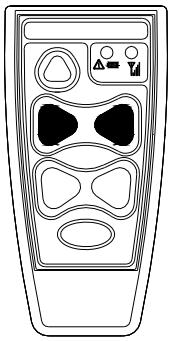


5. PRESS POWER TO SELECT NORMAL MODE

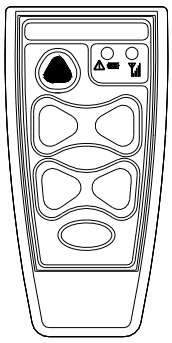
2-LATCHED, 1-MOMENTARY ALL WITH DUMP



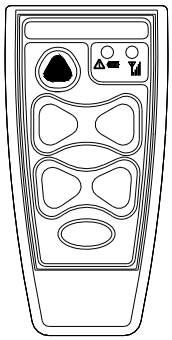
1. PRESS 1, 4, 8 TO GET INTO CONFIGURATION MODE



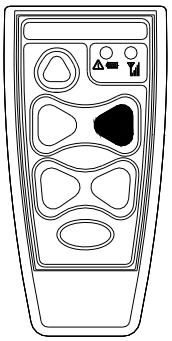
2. PRESS BUTTONS 1, 2 IN TURN, WAITING FOR THE CONFIRM LED



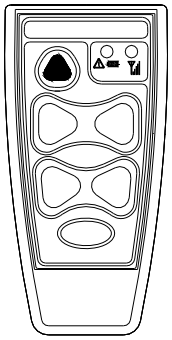
3. PRESS POWER TO SEND SETTINGS TO RECEIVER



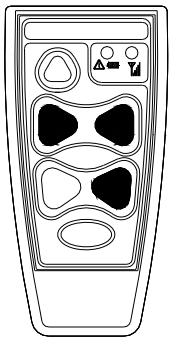
4. PRESS POWER TO DISABLE NONE



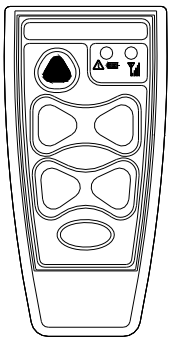
5. PRESS BUTTON 1 TO SELECT DUMP FUNCTION



6. PRESS POWER TO SEND SETTINGS TO RECEIVER

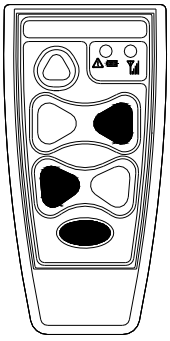


7. PRESS 1ST 3 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED

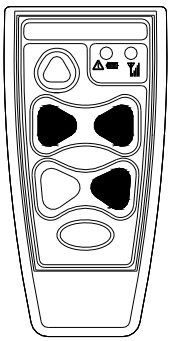


8. PRESS POWER TO SEND SETTINGS TO RECEIVER

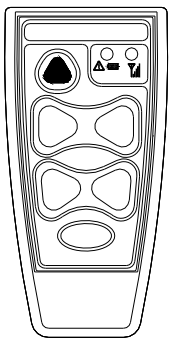
3-LATCHED OUTPUTS WITH E-STOP



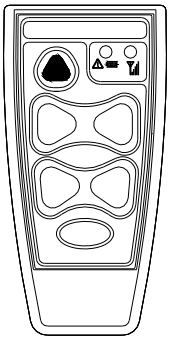
1. PRESS 1, 4, 8 TO GET INTO CONFIGURATION MODE



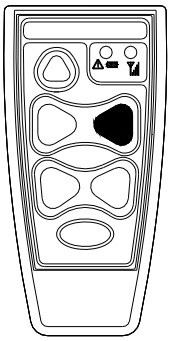
2. PRESS 1ST 3 BUTTONS IN TURN, WAITING FOR THE CONFIRM LED



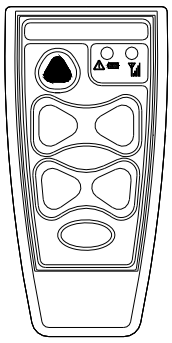
3. PRESS POWER TO SEND SETTINGS TO RECEIVER



4. PRESS POWER TO DISABLE NONE

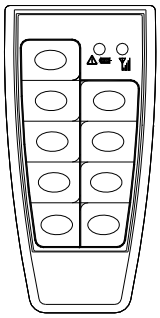
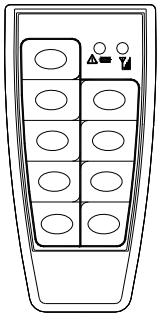
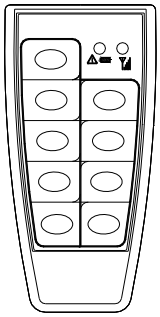
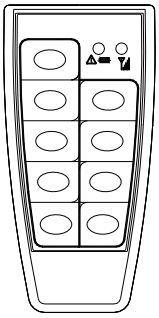
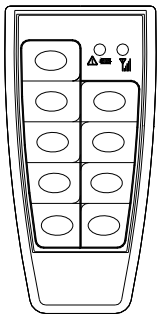
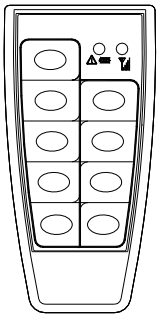
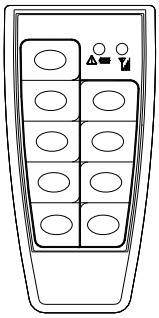
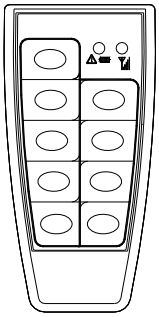


5. PRESS BUTTON 1 TO SELECT DUMP FUNCTION

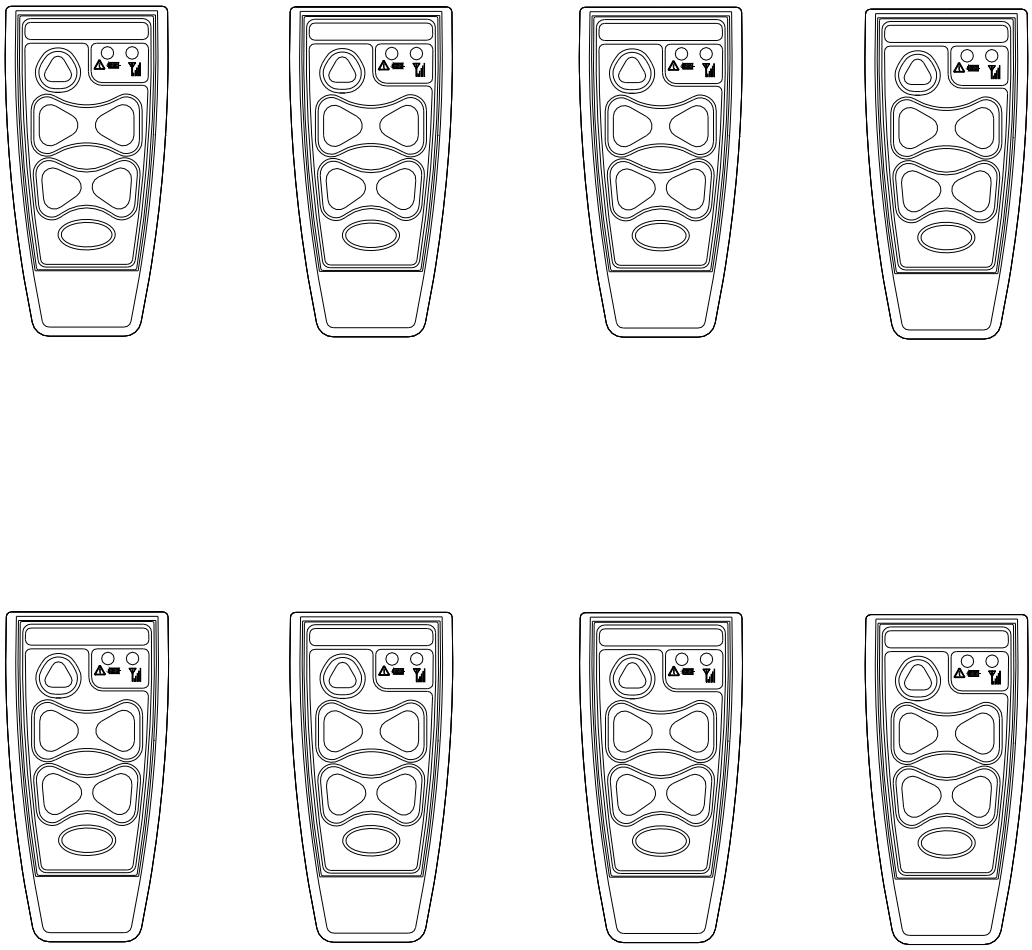


6. PRESS POWER TO SEND SETTINGS TO RECEIVER

YOUR SETTINGS 8-BUTTON

YOUR SETTINGS 5-BUTTON



INSTALLATION

To install the receiver module, use the two mounting holes provided on the enclosure. Please take extra caution not to damage internal components while installing. For high vibration applications, use shock absorbing mounts. It is advised to mount the receiver as high as possible with no metal obstructions in the vicinity of the antenna which might affect RF performance. Antenna extension cables are available from Kar-Tech to aid in this, if needed.

The main power to the receiver should be connected through a switched, fused line capable of a minimum of 20 amps. For best results, connect power (+) to the receiver via an auxiliary terminal of the ignition switch, PTO switch, or ignition relay. Be sure that the ground (-) is connected securely to the chassis or battery with a star washer which digs into the base metal to insure good contact.

All connections must be properly insulated to protect against shorts.

Seal all connections with a non-conductive silicone grease to prevent corrosion.

BEFORE APPLYING POWER!

- Check power and ground for proper polarity.

- Check the wiring harness

for possible shorts before connecting to output devices (i.e. valves and relays) by checking each mating pin terminal.

- Verify that the transmitter batteries are fresh.
- Read the rest of this manual.

ROUTINE MAINTENANCE

Clean transmitter regularly with a damp cloth and mild detergent.

Inspect electrical wiring for wear points or other damage. Repair as required.

Inspect all connections for looseness or corrosion. Tighten and/or "seal" as necessary.

MAINTENANCE PRECAUTIONS

When performing any inspection or maintenance work on the remote system, always exercise care to prevent injury to yourself and others or damage to the equipment. The following are general precautions, which should be closely followed in carrying out any maintenance work.

Do not have hydraulic power available to the valves when performing electrical tests.

Never operate or test any function if any person is in an area where they could be hurt by being hit or squeezed by the hydraulic equipment.

Turn power off before connecting or disconnecting

valve coils or other electrical loads.

TROUBLESHOOTING

This next section provides basic operator level troubleshooting for the MINI REMOTE system. If, after following these instructions, the system still does not function, contact your KAR-TECH representative for further instructions or servicing.

TROUBLESHOOTING CHART

PROBLEM	SOLUTION
No functions work	1. Verify transmitter power source – batteries 2. Verify that receiver or control module power source is present at its input connector 3. Check for proper system ground 4. Check the receiver or control module LED status display for functionality or errors 5. Check the hydraulic system
Certain functions do not work	1. Check the wiring and connections from the receiver or control module to the valve coil or load for the particular function that does not work 2. Check the receiver or control module LED status display for possible fault or error indication 3. Check the hydraulic system 4. Check the electrical system
Functions operate intermittently	1. Check for loose connections at the valve coil or load 2. Check the receiver or control module LED status display for functionality or errors 3. Check the receiver antenna for damage and possible obstructions 4. Check the hydraulic system

ERROR CODES

Count the number of blinks on the receiver or the transmitter red LED

4-OUTPUT

ERROR CODE	*PROBABLE CAUSE*
1	Radio signal problem
2	Short or open connection at output 1
3	Short or open connection at output 2
4	Short or open connection at output 3
5	Short or open connection at output 4

8-OUTPUT

ERROR CODE	*PROBABLE CAUSE*
1	Radio signal problem
2	Short or open connection at output 1
3	Short or open connection at output 2
4	Short or open connection at output 3
5	Short or open connection at output 4
6	Short or open connection at output 5
7	Short or open connection at output 6
8	Short or open connection at output 7
9	Short or open connection at output 8

9-OUTPUT

ERROR CODE	*PROBABLE CAUSE*
1	Radio signal problem
2	Short or open connection at output 1
3	Short or open connection at output 2
4	Short or open connection at output 3
5	Short or open connection at output 4
6	Short or open connection at output 5
7	Short or open connection at output 6
8	Short or open connection at output 7
9	Short or open connection at output 8
10	Short or open connection at output 9

PARTS LIST

PART NUMBER	DESCRIPTION
3A0912C	5-BUTTON MINI™ PROGRAMMABLE TRANSMITTER
3A0913C	8-BUTTON MINI™ PROGRAMMABLE TRANSMITTER
3A0914B	4-OUTPUT ON/OFF RADIO RECEIVER
3A0918B	8-OUTPUT ON/OFF RADIO RECEIVER
3A091RB	9-OUTPUT ON/OFF RADIO RECEIVER
3A0917D	4-OUTPUT PROGRAMMABLE MINI™ SYSTEM
3A0919D	8-OUTPUT PROGRAMMABLE MINI™ SYSTEM
3A091YA	9-OUTPUT PROGRAMMABLE MINI™ SYSTEM

There are no user-serviceable parts inside the transmitter or the receiver. Return the units for service.

Note: For operation with negative ground systems only.

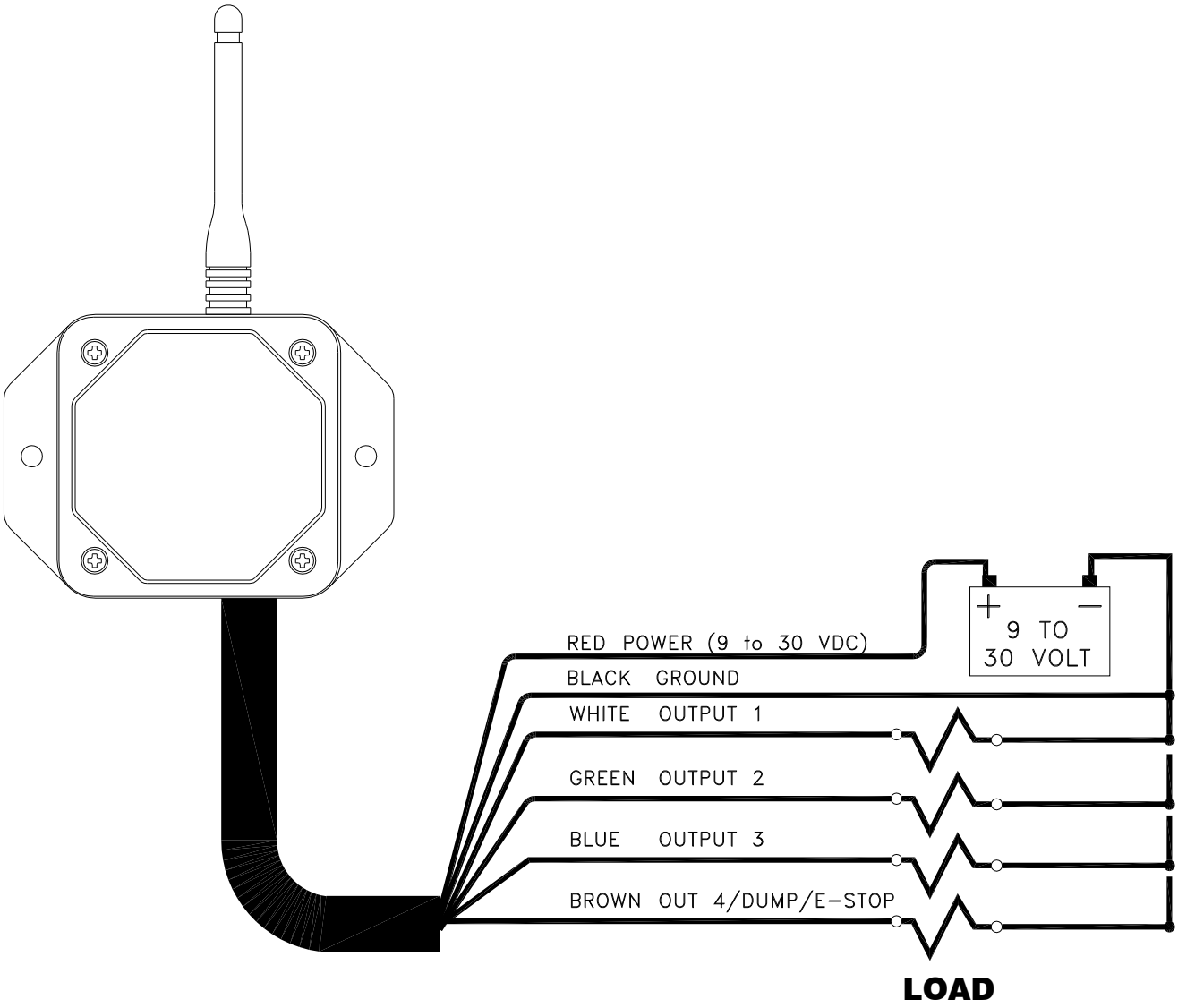
WARNING:

The MINI REMOTE must be operated in compliance with all applicable safety regulations, rules, and practices. Failure to follow required safety practices may result in death or serious injury.

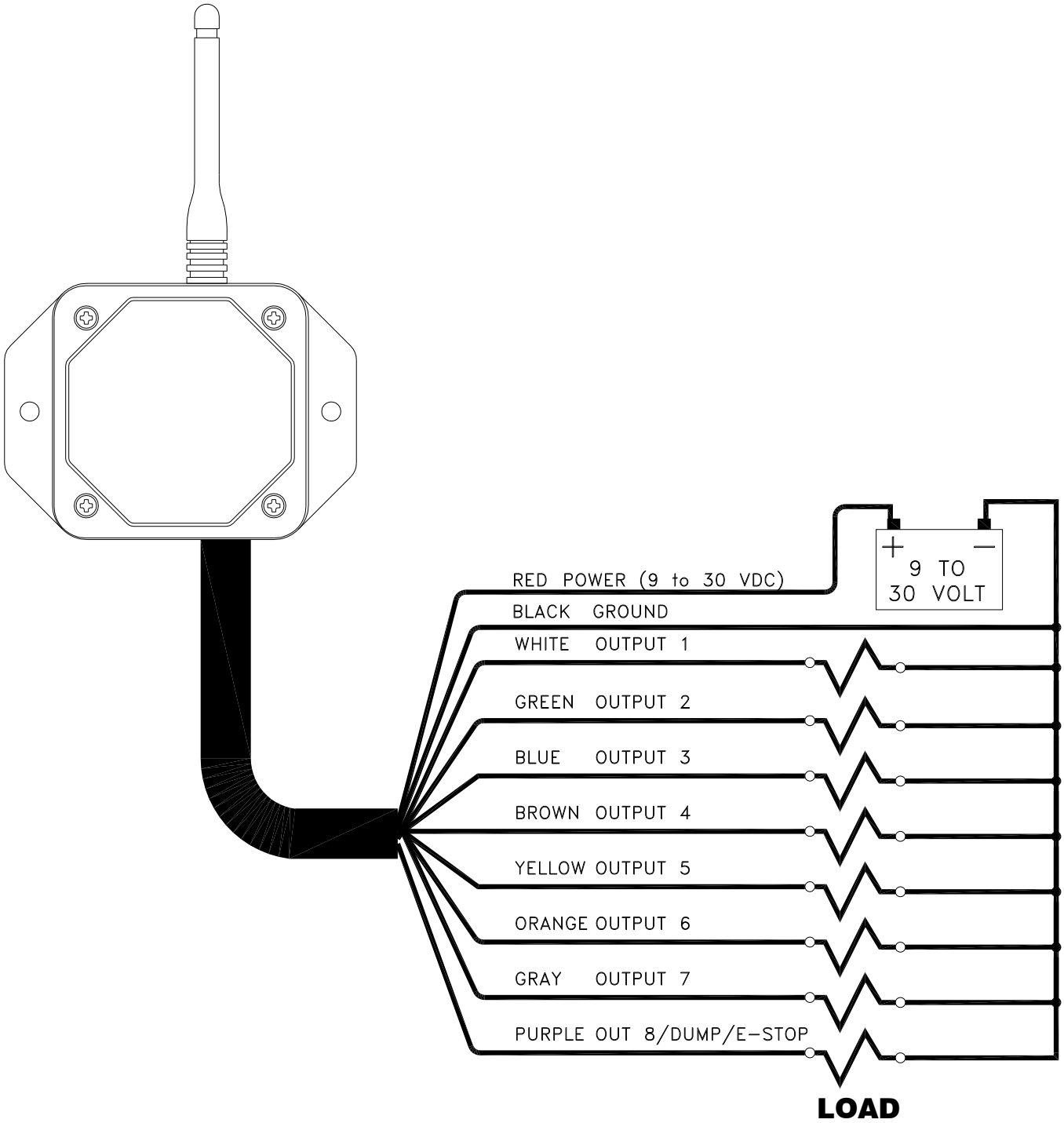
The information, specifications, and illustrations in this manual are those in effect at the time of printing. We reserve the right to change specifications or design at any time without notice.

WIRING

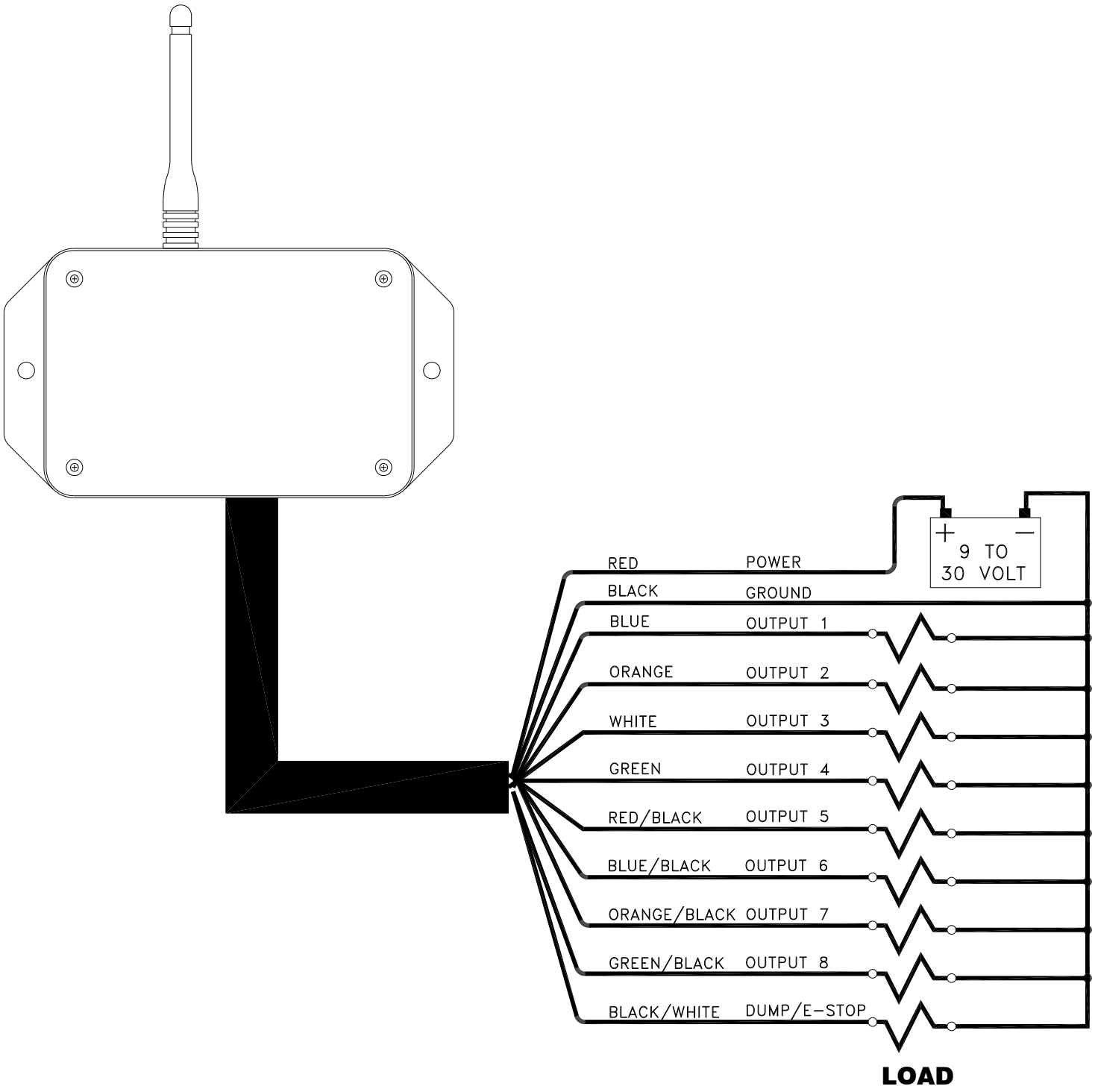
4-OUTPUT



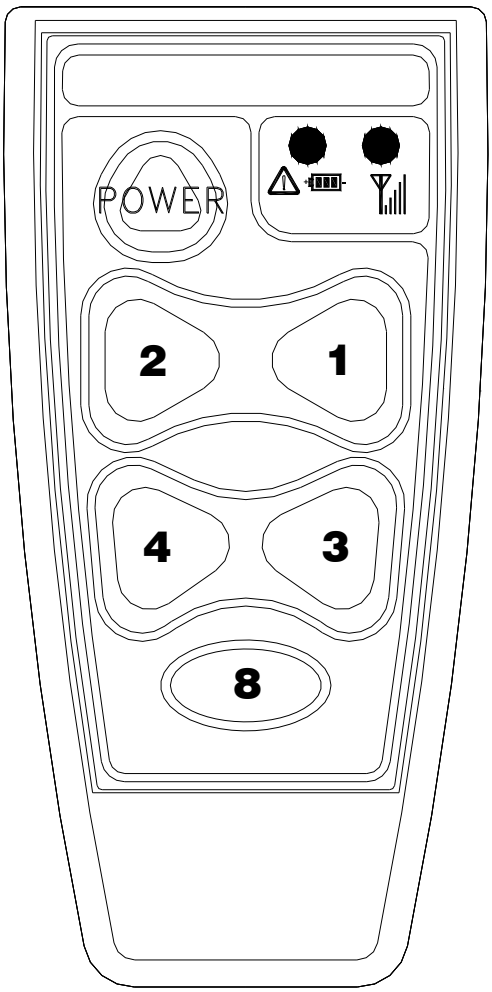
8-OUTPUT


+
−
9 TO
30 VOLT
RED POWER (9 to 30 VDC)
BLACK GROUND
WHITE OUTPUT 1
GREEN OUTPUT 2
BLUE OUTPUT 3
BROWN OUTPUT 4
YELLOW OUTPUT 5
ORANGE OUTPUT 6
GRAY OUTPUT 7
PURPLE OUT 8/DUMP/E-STOP
LOAD

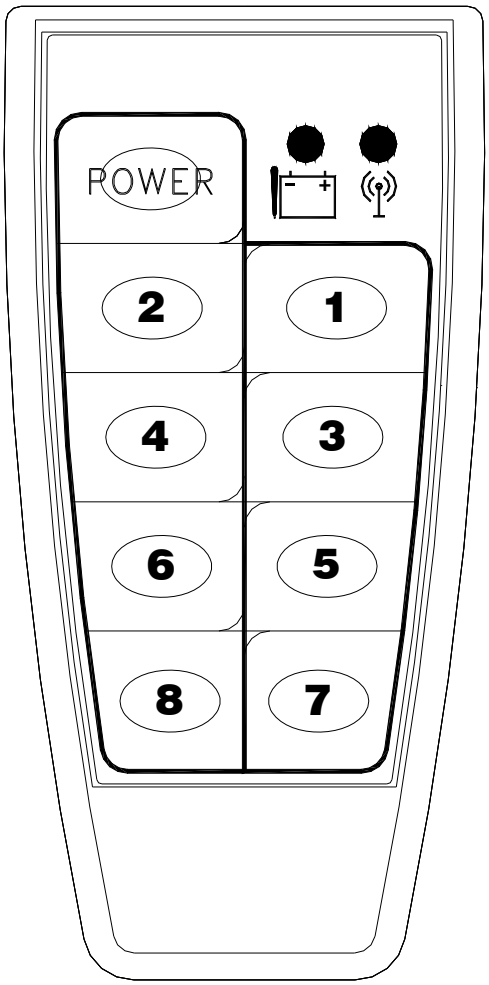
9-OUTPUT


+ −
9 TO
30 VOLT
RED POWER
BLACK GROUND
BLUE OUTPUT 1
ORANGE OUTPUT 2
WHITE OUTPUT 3
GREEN OUTPUT 4
RED/BLACK OUTPUT 5
BLUE/BLACK OUTPUT 6
ORANGE/BLACK OUTPUT 7
GREEN/BLACK OUTPUT 8
BLACK/WHITE DUMP/E-STOP
LOAD

TRANSMITTER PICTORIAL

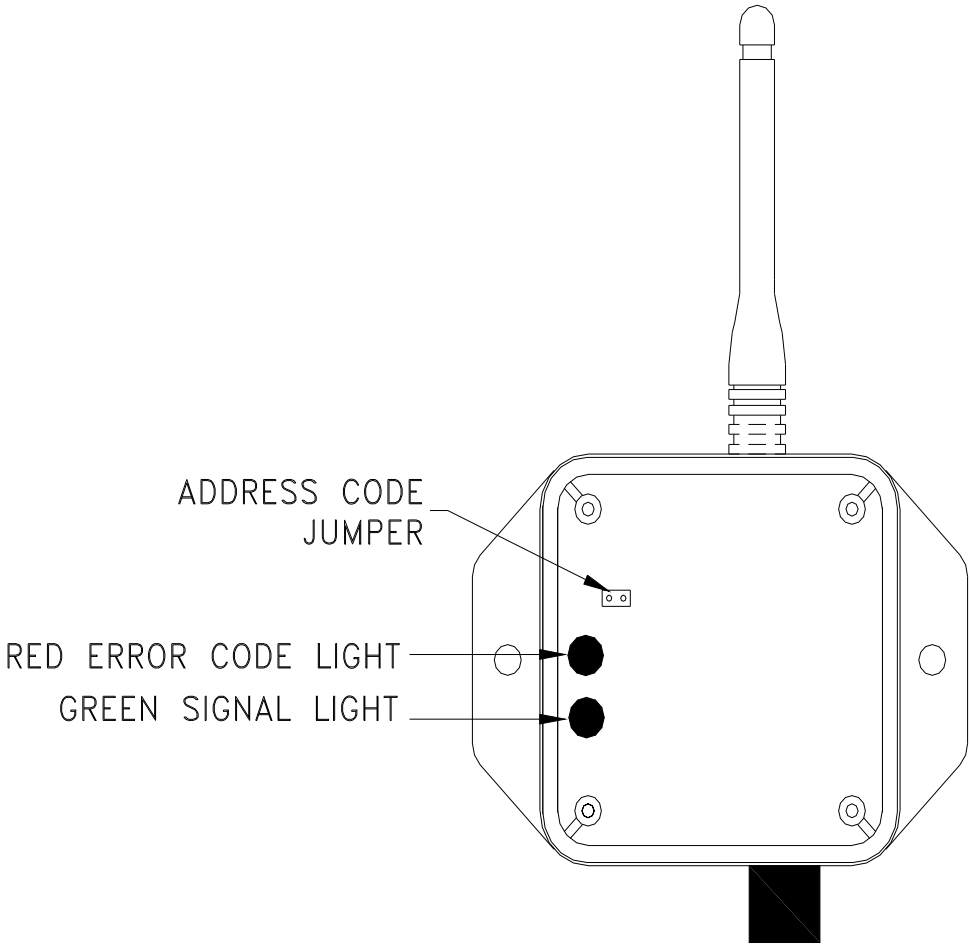


5-BUTTON
TRANSMITTER



8-BUTTON
TRANSMITTER

RECEIVER PICTORIAL



RECEIVER WITH
COVER REMOVED

4-OUTPUT and 8-OUTPUT
RECEIVER. 9-OUTPUT SIMILAR

SPECIFICATIONS

RF COMPLIANCE:

FCC ID: USA FCC ID: P4U-MNTA1, 2

Industry Canada Certification Number: 4534A-MNTA1, 2

EQUIPMENT CLASS: PART 15 SPREAD SPECTRUM TRANSMITTER

TRANSMITTER

Power supply ..... 2AAA Alkaline batteries

Battery life ..... 60hr minimum

Operating temperature - Radio..... -40˚C to +85˚C

Storage temperature ..... -40˚C to +100˚C

RF Frequency..... 902-928 MHz

RF Transmit power (EIRP) ..... 10 mW

Vibration .....3G to 200Hz

Shock 50G

Protection IP61

RECEIVER

Power supply voltage 9-30VDC

Operating temperature..... -40˚C to +85˚C

Storage temperature ..... -40˚C to +100˚C

Outputs ..... 3.0-5.0A, sourcing (20A system max)

RF Frequency..... 902-928 MHz

RF Transmit power (EIRP) ..... 10 mW

Vibration .....3G to 200Hz

Shock 100G

Protection IP67

INSTRUCTION TO THE USER

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 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.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.