User Manual

rfCUE 99

Version 02

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Caution

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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1. Introduction

1.1. Overview

The rfCUE 99 is a RF operating hand held wireless control panel that is prepared for two way communication with the rfbaseCUE. The unit rfbaseCUE provides connection via CUEwire (RS-485) to the rest of the control system.

1.2. Models

Model	Product code	Description
rfCUE 99	CS0170-x4	Wireless RF remote hand-held control panel, 433.92 MHz
rfCUE 99	CS0170-x8	Wireless RF remote hand-held control panel, 869.85 MHz
rfCUE 99	CS0170-x9	Wireless RF remote hand-held control panel, 914.5 MHz

Note: x in Product code means type of the wood enclosure (birch, mahogany, oak, white birch)

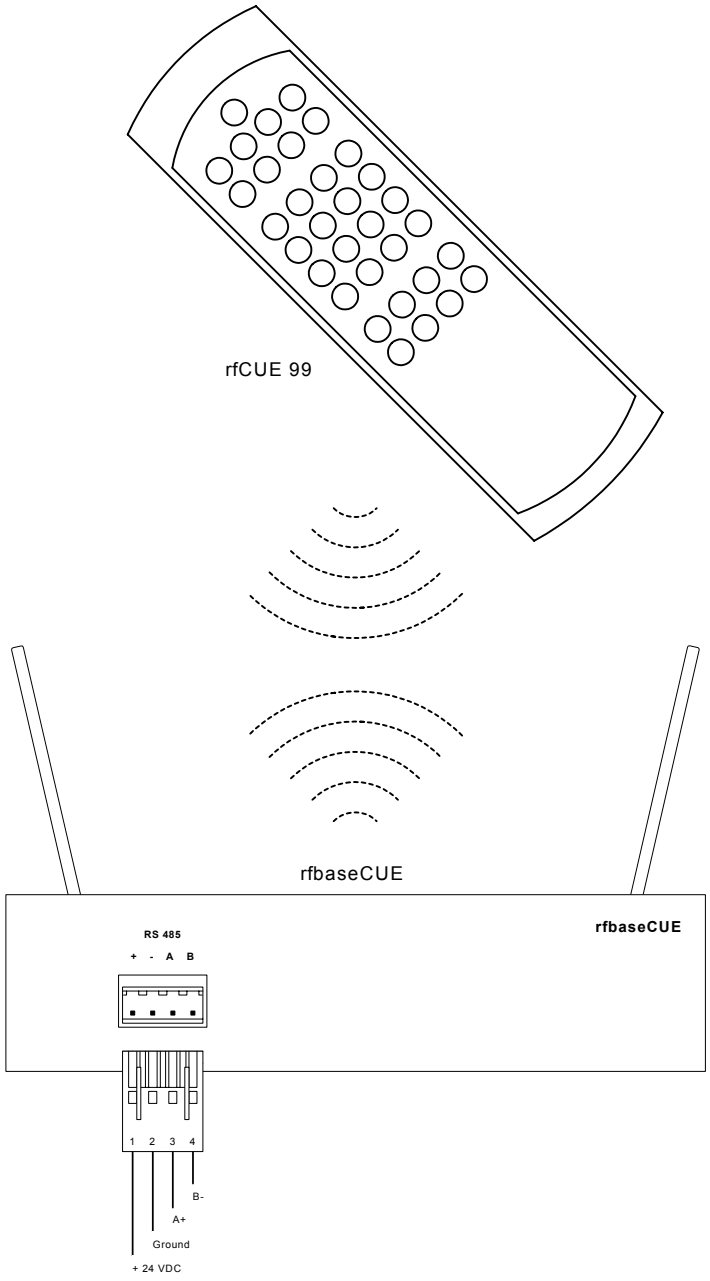
1.3. Features

The main features are

- 32 freely programmable push buttons
- 2 color (red and green) back-light and indication
- 2 way communication
- rechargeable accumulator 1 100 mAh
- RF frequency 433.92 MHz or 869.85 MHz or 914.5 MHz
- RF power max. 10 mW (for 433.92 MHz) or max. 1 mW (for 869.85 MHz and 914.5 MHz)

2. Using and Connecting

The rfCUE 99 is connected to the rest of control system via RF communication with the unit rfbaseCUE. The unit rfbaseCUE then provides a connection via RS-485 bus to the control units Assistant or Assistant-S. For further information see **User Manual rfbaseCUE**.



3. Charging

The rfCUE 99 wireless remote control panel is powered from internal accumulators 1 100 mAh.

To charge the accumulators, use the delivered power supply adapter. The connector for connecting the charger is on the rfCUE 99 bottom side. Charging time for fully charged accumulator is **15 hours**. Longer charging time is not dangerous because the protection against overcharging is built-in. It is recommended to connect the rfCUE 99 to the charger at the end of every working day. Connect the charger to the rfCUE 99 also in case you find the lower range of the transmission or when the back-light brightness is reduced.

4. Operational Description

4.1. Back-light in active and sleeping mode .....

The rfCUE 99 panel is equipped with two colors (red / green) back-light / indication LEDs that light on whenever the rfCUE 99 is in active mode. When in sleeping mode all the back-light / indication LEDs go dark. The sleeping mode is terminated after pressing the back-light button or any other button on the rfCUE, the backlight LED will light on for the time of about 6 - 8 seconds the rfCUE 99 remains active. Then the rfCUE 99 goes to sleeping mode to reduce power consumption. In sleeping mode the rfCUE 99 does not transmit or receive any RF signals.

4.2. Transmit / Receive Indication.....

When the rfCUE 99 is transmitting or receiving valid RF data packets it flashes shortly (approx. 0.2 second) the red LED under back-light pushbutton. When the rfCUE 99 gets out of its RF operating range the flashing of this LED becomes visibly longer.

4.3. Operation of the Feedback Indication .....

The rfCUE 99 is equipped with two colors (red / green) indication / back-light. The color of each button LED can be controlled from the program of the control system.

There exist several very important differences when using this type of indication on the wired and the wireless panel

1. The rfCUE 99 is not active all the time it goes to sleeping mode. The rfCUE 99 does not transmit or receive any RF signals in the sleeping mode and all its LEDs remain dark and so: It is not able to make any indication. All commands operating with button LEDs during that time are stored in rfbaseCUE until the rfCUE 99 becomes active. Then the latest status of the button LEDs is re-transmitted. During the time when the rfCUE 99 is not active the rfbaseCUE makes periodical attempts to establish new communication.

2. It is very important to have in mind that similar principles of operation is valid also for the case when the rfCUE 99 gets out of its RF operational range even if it is in active mode!

3. If the rfCUE 99 gets out of its RF operational range the displayed indication remains according to the status of last valid communication. The last status also remains when it wakes up from sleeping mode.

4. The rfbaseCUE can operate with more than one rfCUE 99 in one system.

5. When the rfbaseCUE is after reset it does not send any information to any rfCUE 99 until the valid communication with some rfCUE 99 is established. It means: **There is no indication on the rfCUE 99 before first button on the rfCUE 99 is pressed.**

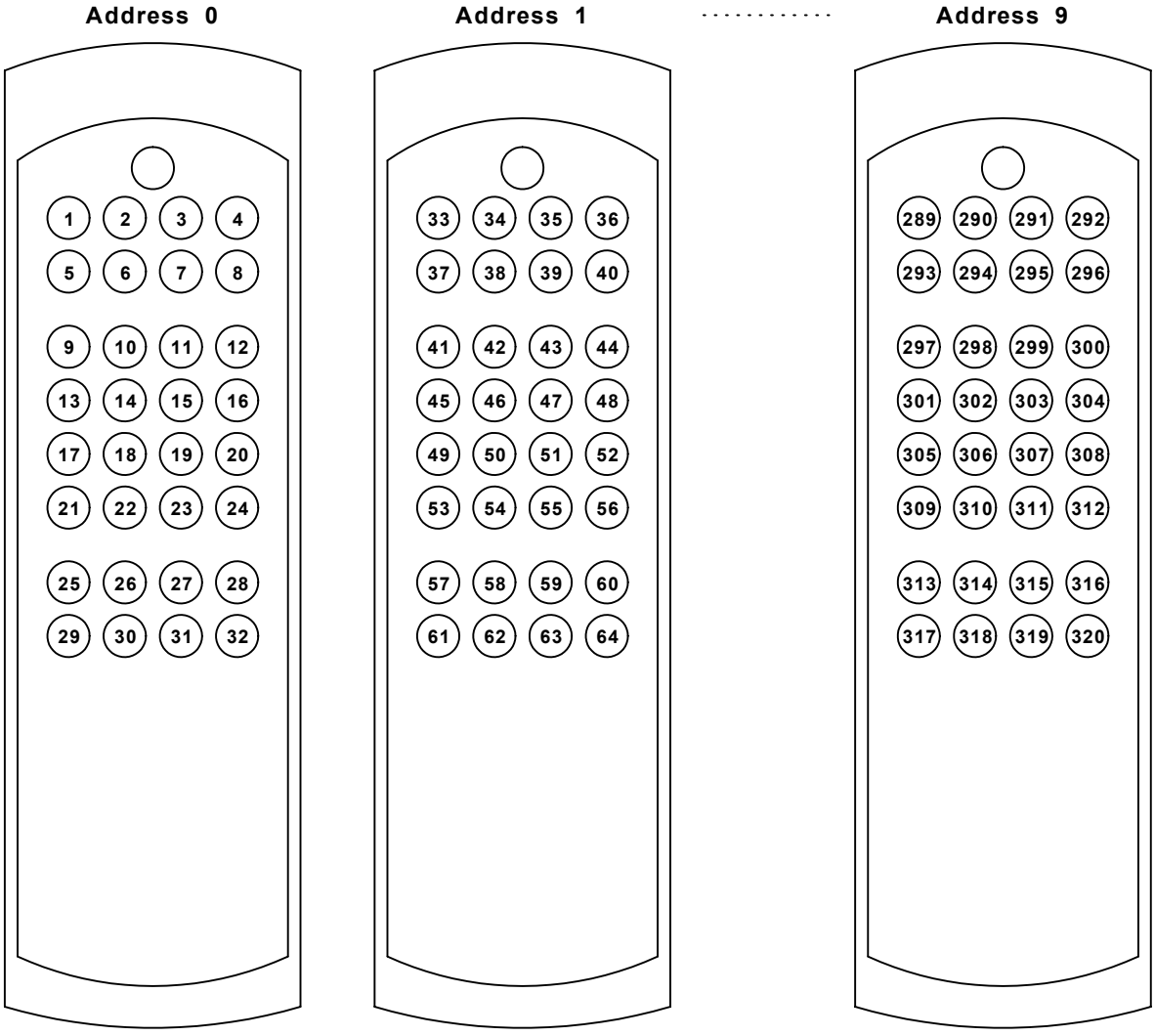
5. Addressing and Button Codes

Default address of the rfCUE 99 is **0**. That means it transmits **button codes 1 .. 32**. In time of the delivery the address is set to the default value. **Different address setting in time of delivery is available on request.**

The address of the rfCUE 99 can be in set in the range **0 .. 9** and can be changed in the rfCUE 99 modify mode (see chapter Modify Mode). When the address is set to 1 the button codes are in range 33 .. 64, for address 2 the button codes are in range 65 .. 96 and so on.

Generally speaking the button codes of the rfCUE 99 are dependent on the address and can be calculated: Button codes range is from (Address * 32 +1) to (Address * 32 +32)

The lowest button code is generated by a button in the upper left corner, the highest button code is generated by a button in the lower right corner.



6. Modify Mode

6.1. Overview.....

Before starting, please check first if you have all the following items

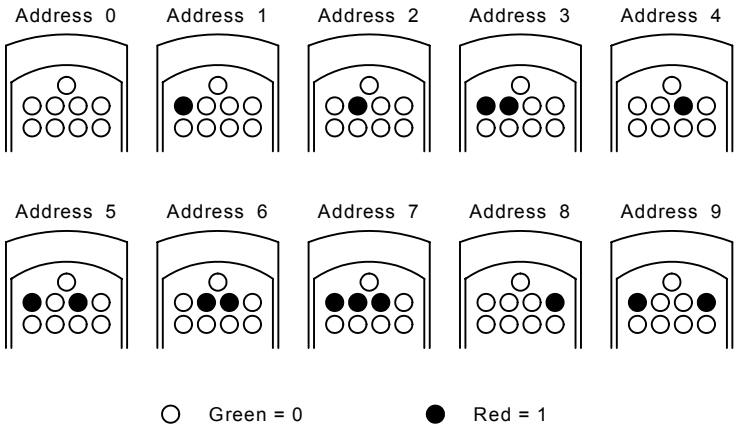
1. File **RFMOD.EXE** to involve modification of the address of rfCUE 99
2. rfbaseCUE with power source
3. Windows PC with one free serial port
4. Communication cable between rfbaseCUE HOST connector and PC.

The program **RFMOD.EXE** makes the rfbaseCUE send via RF a special command, which will set the receiving rfCUE to modify mode. To send this command can be also achieved directly from the rfbaseCUE service mode – see **User Manual rfbaseCUE**. The rfCUE is able to receive this command only when back-light button is pressed.

6.2. How to Display the Address .....

Steps are

1. Disconnect RS-485 signals A and B on the rear panel of the rfbaseCUE, connect the power.
2. Connect your PC to the rfbaseCUE HOST connector using a data communication cable.
3. Press the back-light button on the rfCUE and hold it.
4. Run the **RFMOD.EXE** (in DOS window) still holding the back-light button. The operation now lasts for several seconds.
5. The LED under the back-light button starts to blink several times.
6. On the LEDs under the first 8 buttons there will be a binary value of current address of the rfCUE 99 displayed. The leftmost upper LED means LSB bit. Red color means log. 1. When current address is 0 then the first 8 LEDs remain green, when current address is 1 then the leftmost upper LED goes red and the rest remain green, …

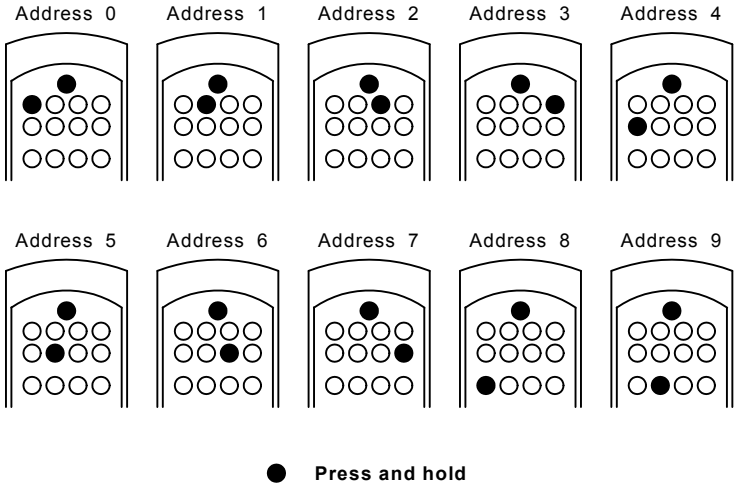


7. The rfCUE 99 returns to normal operation after releasing the back-light button.

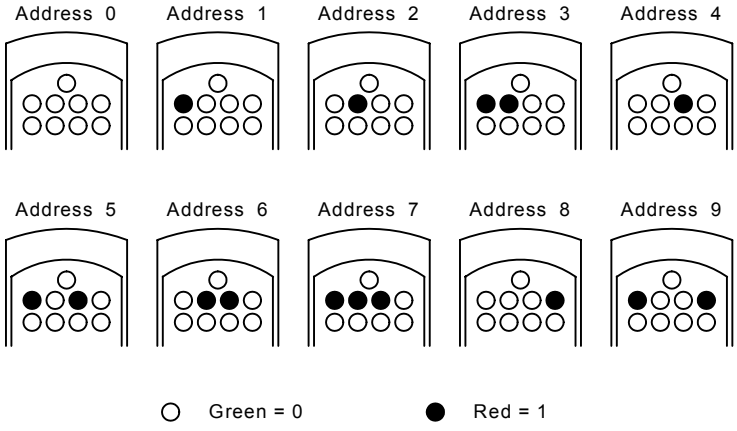
6.3. How to Modify the Address .....

Steps are

1. Disconnect RS-485 signals A and B on the rear panel of the rfbaseCUE, connect the power.
2. Connect your PC to the rfbaseCUE HOST connector using a data communication cable.
3. Press the back-light button on the rfCUE 99 and hold it.
4. Press and hold also one button, which should respond to a requested new value as follows:
   For address 0 hold button leftmost upper (first) row button. For address 1 hold second button in the first row. For address 2 hold third button in the first row. And so on …



5. Run the RFMOD.EXE (in DOS window) still holding the back-light and one requested button. The operation now lasts for several seconds.
6. The LED under the back-light button starts to blink several times.
7. On the LEDs under first 8 buttons there will be the binary value of new address of rfCUE 99 displayed. The same value is displayed on LEDs in 3rd and 4th row and in complement on 5th and 6th row as well as on 7th and 8th row.
   The leftmost upper LED means LSB bit. Red color means log.1. When current address is 0 then the first 8 LEDs remain green, when current address is 1 then the leftmost upper LED goes red and the rest remain green, …



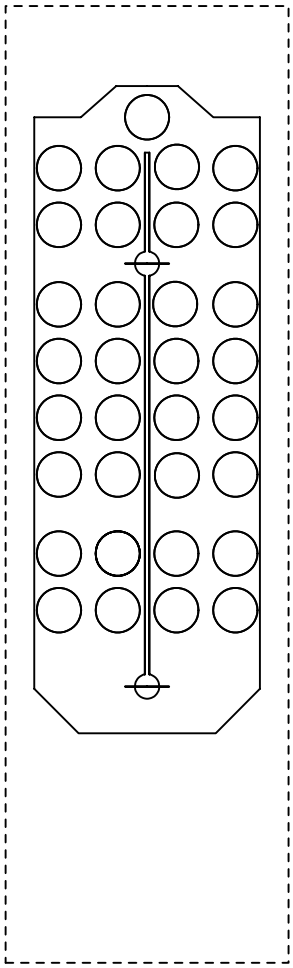
8. The rfCUE 99 will return to normal operation with new address after releasing the back-light button.

7. Button Labeling

7.1. Overview

The labeling is provided by a plastic foil inserted under the buttons. The foil can be printed on a laser printer. The basic layout with a set of standard symbols is available in form of *.dwg file (for AutoCAD) on the web site **www.cuesystem.com**.

7.2. The Foil Shape



7.3. The Foil Replacement

Steps are

1. Cut the foil into a shape according the picture (see above).
2. Put the rfCUE 99 upside down.
3. Remove the two screws from the rear side of the rfCUE 99.
4. Remove the front panel with buttons and foil **still holding it upside down**.
5. Replace foil and put the front panel back and fasten the screws.

8. Troubleshooting

1. **The Brightness of LEDs is Visibly Decreasing.**
   Charge the accumulator immediately.

2. **When pressing the button the LEDs are going on and off immediately and then back-light button flashes several times.**
   The accumulator is totally discharged. When waking up from the sleep mode it tries to light on the LEDs. The increased consumption causes a drop of voltage, which then resets the microprocessor. Charge the accumulator immediately.

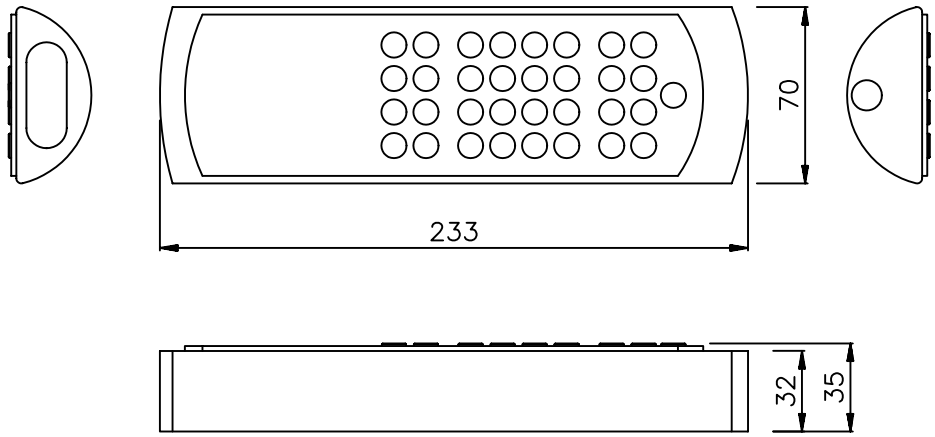
3. **The RF operating range is short.**
   - Check the accumulators in the rfCUE 99 and recharge them.
   - Check the presence of disturbing RF signals (frequencies of other RF operating equipment in the installation).
   - Change position of the rfCUE.
   - Change position of rfbaseCUE antennas.

9. Specifications

Communication	Radio frequency 433.92 / 869.85 / 914.5 MHz
Buttons layout	32 buttons
Buttons back-light	Two color, red or green
Power supply	Rechargeable accumulator pack
Enclosure	Wood, stainless steel panel
Dimensions	217 x 70 x 32 mm
Weight	0.6 kg
Supplied accessories	Charger 110 - 230 VAC, 50 / 60 Hz

10. Mechanical Drawings

All dimensions are in **mm**.



11. The Equipment Label

Wireless handheld control panel rfCUE working on 914.5 MHz frequency is certified for use in U.S.A. According to FCC §15.19 (5) only small simple label with FCC identifier is placed on wooden enclosure.

Full label see on the picture below.

CS0170 rfCUE 99, 914.5 MHz

FCC ID: QHXCS0170-9

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Notes