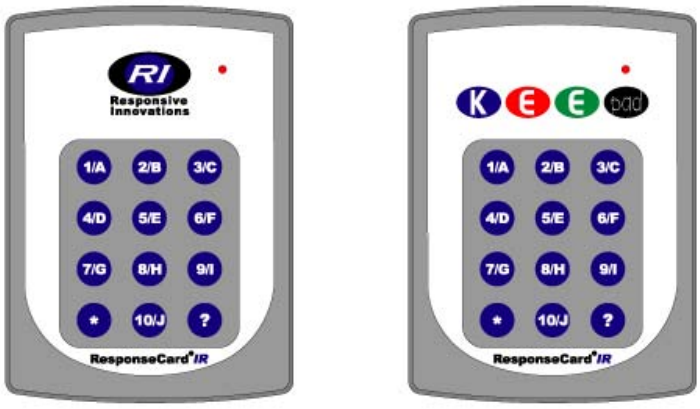
< ResponseCard IR >

1. Introduction

It is a part of educational system, students using this system can transmit answers though it to PC remotely. Then a receiving part accepts the signal form the each student and passes it over to a PC. Finally, the PC saves the answers and reconstructs them.

2. Remote Keypad

it has a unique ID. Once if the number key on the keypad is selected, it transmits the unique ID and corresponding IR signal.



(1) Button ; total 12 buttons

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, *, ?

(2) LED : red color

It turns on when one of the buttons is selected.(I.R signal is being transmitted.)

It also turns on during ID setting or factor revert.

(3) ID Code

There are 1,000,000 possible ID combinations available.

Range: 000,000 ~ 999,999

ID code is stored in a non-volatile EEPROM.

(4) Setting ID

ID of each remote can be set to a desired ID code as follows:

a) Press and hold both buttons until LED is lit constantly.

b) Press the numeric key corresponding the desired ID code.

For code s needed to be pressed.

c) Press either button to save the ID code.

d) IR remote will acknowledge by blinking LED 3 times.

(5) Revert back to factory programmed ID

a) Press and hold both buttons until LED is lit constantly.

b) IR remote will acknowledge by blinking LED 3 times.

(6) Range

The nominal IR transmission distance is 12m when the battery is fresh.
The IR transmission distance may reduce as the battery wears out.

(7) Electrical Specification

(a) carrier frequency : 38khz for infrared signal

(b) operating range : Max. 30m

(c) Power Supply : 3V (CR2032 * 2ea)

(d) Oscillation : 4Mhz resonator (M.P.U)

(8) Demension

65.0 x 89.5 x 9.7 (W, L, H)

3. Receiver

transforms I.R(infrared) signal received from the Remote keypad to RS232 signal and then turn it over to personal computer.

(1) Protocol

IR receiver sends 9 bytes of data to the host PC via RS232 interface when a valid IR data is received.

ID code	6 bytes
Button code	1 byte
<CR>	1 byte
<LF>	1 byte

Ex: ID 123456 and button *, IR receiver will send bytes 1 2 3 4 5 6 * <CR> <LF>

(2) RS232 Settings

Baud rate	19,200
Parity	None
Data bits	8
Stop bits	1

Flow Control: Off, DTR and RTS should be set high.

(3) Power Source & Management

IR receiver is powered from DTR and RTS signals. It is strongly recommended that both DTR and RTS signals are set to HIGH (positive voltage) in order to provide necessary power to IR receiver.

(4) Cable

Length : 3m , Shielded.

(5) Osillation

internal oscillation frequency : 4MHz (for M.C.U)

FCC Information

This device complies with Part 15 of the FCC Results. Operation is subject to the following two conditions:

(1) This Device may not cause harmful interface, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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 correct the interference by one or more of the following measures:

1.1. Reorient or relocate the receiving antenna.
1.2. Increase the separation between the equipment and receiver.
1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.