

NEC Protocol

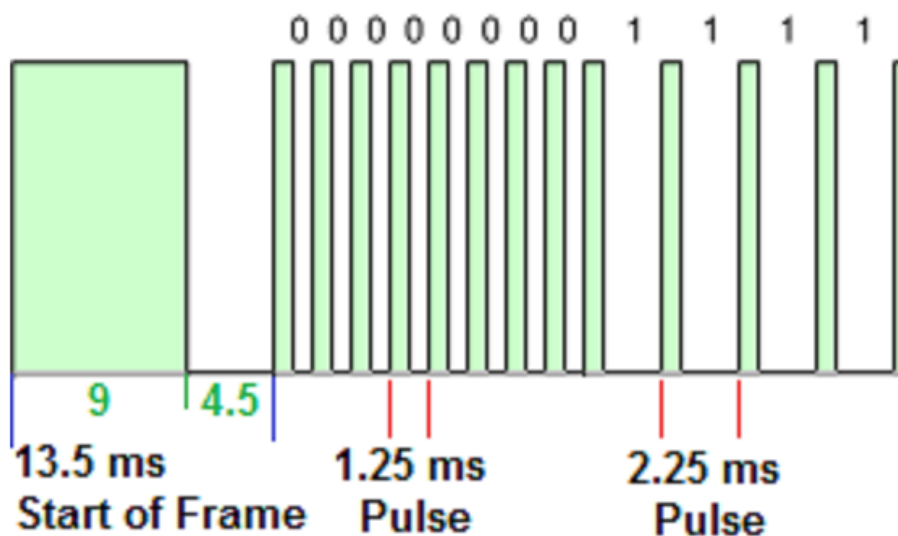
NEC IR protocol encodes the keys using a 32bit frame format as shown below.

NEC Frame Format			
Address	Complement of Address	Command	Complement of Command
LSB-MSB(0-7)	LSB-MSB(8-15)	LSB-MSB(16-23)	LSB-MSB(24-31)

Each bit is transmitted using the pulse distance as shown in the image.

Logical '0': A 562.5 μ s pulse burst followed by a 562.5 μ s space, with a total transmit time of 1.125ms

Logical '1': A 562.5 μ s pulse burst followed by a 1.6875ms space, with a total transmit time of 2.25ms



When a key is pressed on the remote controller, the message transmitted consists of the following, in order:

1. A 9ms leading pulse burst (16 times the pulse burst length used for a logical data bit)
2. A 4.5ms space
3. The 8-bit address for the receiving device
4. The 8-bit logical inverse of the address
5. The 8-bit command
6. The 8-bit logical inverse of the command

7. A final 562.5µs pulse burst to signify the end of message transmission.

The four bytes of data bits are each sent least significant bit first. Below image illustrates the format of an NEC IR transmission frame, for an address of 00h (00000000b) and a command of ADh (10101101b).

A total of 67.5ms is required to transmit a message frame. It needs 27ms to transmit the 16 bits of address (address + inverse) and the 16 bits of command (command + inverse).

