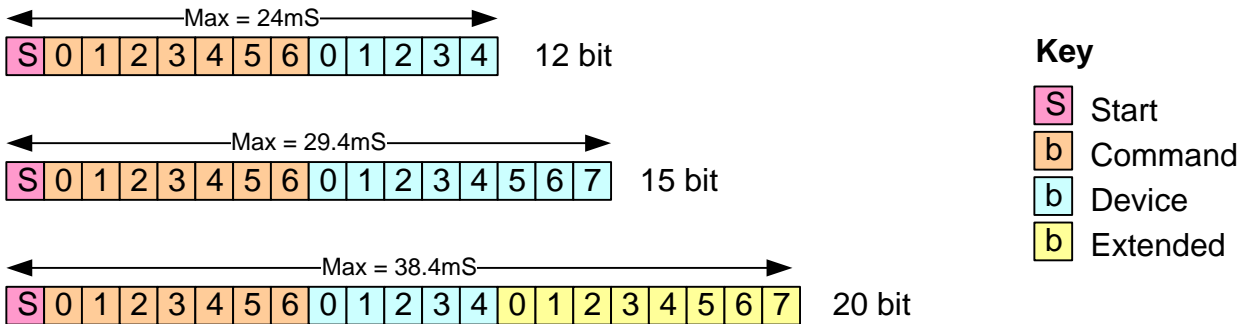


Sony SIRC infrared protocol

<http://picprojects.org.uk/>
February 2010

SIRC versions

There are three versions of the protocol; 12, 15 and 20 bit. All three versions have a Command and Device word, the 20 bit version only has an 8 bit Extended word. Within the bit stream each word is sent LSB first as shown below.

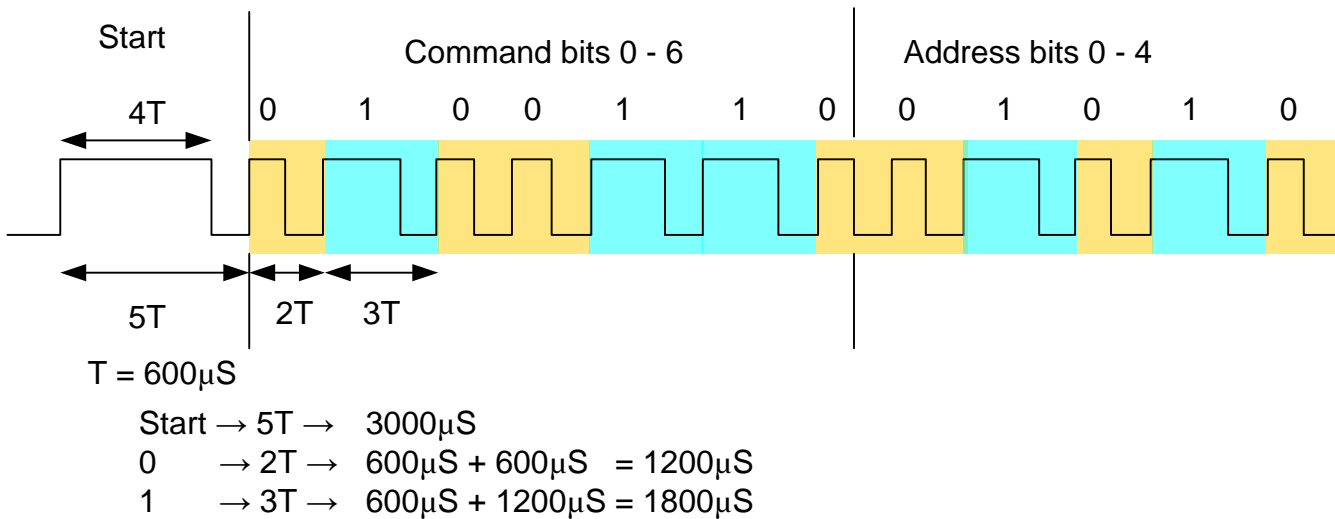


Frame Timing

The frame timing is based on multiples of a $600\mu\text{S}$ pulse width T .

Frames begin with a $4T$ Start mark pulse.

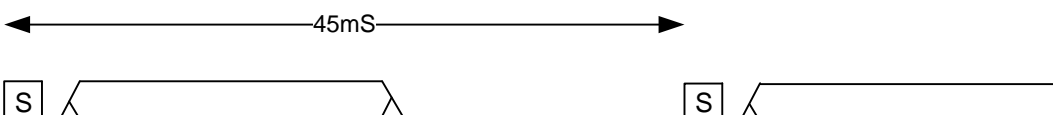
Each bit in the frame is represented by a $1T$ space followed by either a $1T$ mark if the bit is a '0' or $2T$ mark if the bit is a '1'



Repeat rate

Frames are repeated at an interval of 45mS

Sony remotes tested all appear to repeat each frame a minimum of 3 times

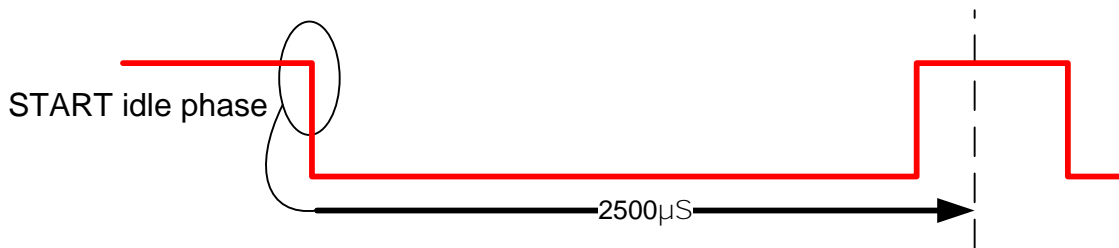


SIRC Data Receiver Method

<http://picprojects.org.uk/>

February 2010

Note:
The output from the TSOP4838 IR receiver IC is active low so we need to invert the level seen on the I/O input pin when receiving data.



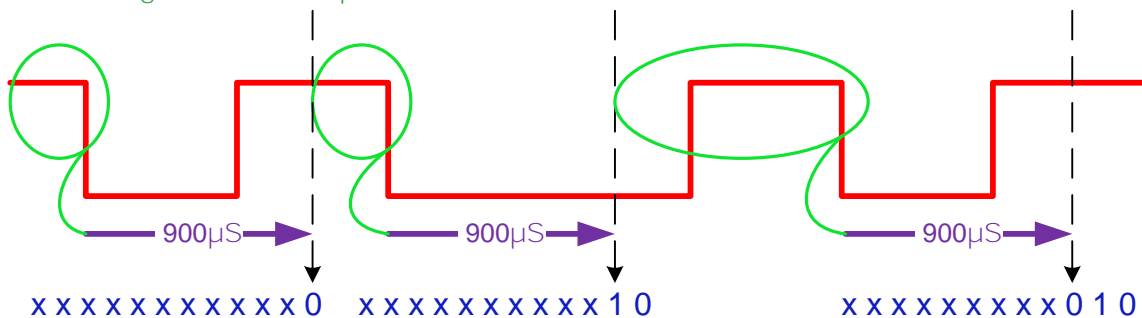
Wait for falling edge of start mark pulse
Once falling edge detected start 2500µs timer.
If another falling edge seen before the timeout, abort.
Else start data bit receive phase

DATA BIT receive phase

Data is transmitted LSB first so it is assembled LSB to MSB. Since it is sent as a 7 bit command, followed by 5 bit device id, the code must split the 12 received bits into two groups of 7 and 5 bits.

Wait for falling edge:

- If edge detected start 900µs timer
- If no edge within 1200µs abort receive



- Wait for 900µs then sample input.
- If falling edge detected before time out abort receive

The data bit receive code loops until all 12 bits have been received.

Because SIRC also supports 15 and 20 bit transmission, after 12 bits have been received, the code 'listens' for more falling edges over a 10mS period. Any falling edges seen during this hold down period will cause the receiver code to abort since it indicates either 15/20 bit SIRC or spurious reception.
