

UART Framing

Electrical Engineering

What one asynchronous character looks like on the wire, bit by bit.

A UART sends one asynchronous frame per character, with no clock line shared between the two devices.

8N1 FRAME
10 bits per byte

9600 BAUD
960 bytes per second

CLOCK ERROR TOLERATED
About 2%

- The idle line is high; a start bit pulls it low
- Data follows, least significant bit first
- An optional parity bit comes after the data
- One or two stop bits return the line high
- Both ends must agree the baud rate beforehand
- The receiver samples the middle of each bit

LOOK FOR IT

115200 baud in 8N1 carries about 11.5 kB per second once start and stop bits are counted.

Garbage on the line is nearly always a baud mismatch, a missing common ground, or transmit wired to transmit.