

# **Brother FAX-645 LCD initialisation sequence**

LCD 6 pin interface : DATA, CLK, STB, GND, +5V, GND

CLK 28uS (35.7631kHz) 16uS high, 12uS low, only present during STB period

STB active low. Held low for duration of a byte, or continuously for duration of a byte sequence.

DATA write clocked on rising edge of CLK

DATA sent least-significant-bit first, 800uS delay between bytes

## **LCD initialisation:**

08 20 F8 01

06 0C 40 0A 00 0E 01 0F 11 0F 00 0A 00 0E 11 11 11 0E 00 0A 00 11 11 11 13  
0D 00 06 09 1C 80 1C 09 06 00

0C 80 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 80 0C

...

0C 80 50 4C 45 41 53 45 20 57 41 49 54 20 20 20 20 20 8F 0C

...

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Initial code, each byte written with a single pulse to the STB line,

08 - Display off, cursor off, blink off

20 - Mode 4 bit, 1 line, 5x7 font

F8 - Set Data cursor to 0x78 (but writes no data as strobe goes high again)

01 - Clear display. 20mS delay before next sequence.

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Second initialisation sequence after 24mS, 800uS between bytes

06 - Right data entry, no scroll

0C - Display on, cursor off, blink off

The following bytes are written with STB held low for the duration

40 - Write to character generator (characters 0, 1, 2, 3 written)

0A 00 0E 01 0F 11 0F 00 -    .#.#.  
                                  .....  
                                  .###.  
                                  ....#  
                                  .####  
                                  #...#  
                                  .####  
                                  .....

```

0A 00 0E 11 11 11 0E 00 - .#.#.
                             .....
                             .###.
                             #...#
                             #...#
                             #...#
                             .###.
                             .....

```

```

0A 00 11 11 11 13 0D 00 - .#.#.
                             .....
                             #...#
                             #...#
                             #...#
                             #...#
                             .###.
                             .....

```

```

06 09 1C 80 1C 09 06 00 - ..##.
                             .#...#
                             ###..
                             .....
                             ###..
                             .#...#
                             ..##.
                             .....

```

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First displayed data written at 100mS after initialisation start, then repeated again at 131mS and 165mS

0C - Display on, cursor off, blink off

The following bytes are written with STB held low for the duration

80 - Write characters to display starting at cursor position 0

20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - " " , blank

The following two bytes are written with separate strobes and terminate the displayed character write

80 - Position cursor to position 0, but writes no characters as strobe goes high again

0C - Display on, cursor off, blink off

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Text written at 198mS, then repeated sequence of blanking and rewriting again at 2.9S, 3.6S and 4.0S

0C - Display on, cursor off, blink off

The following bytes are written with STB held low for the duration

80 - Write characters to display starting at cursor position 0

50 4C 45 41 53 45 20 57 41 49 54 20 20 20 20 20 - "PLEASE WAIT "

The following two bytes are written with separate strobes and terminate the displayed character write

8F - Position cursor to position 15, but writes no characters as strobe goes high again

0C - Display on, cursor off, blink off

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At 4.5S Display then blanked again and "TELEPHONE " displayed