Uniden SSE17 LCD initialisation sequence

v1.2 6 Feb 2021

Phone was manufactured about 2008.

LCD 18 pin interface : ,,,,,,,,,,GND, Vcc, Si, Clk, C/D, Reset, CS

GND	0V
Vcc	+3.3V
Si	Serial data
Clk	Serial clock
C/D	Command/Data
Reset	Reset
CS	Chip select

Display is a graphics module, 132 by 48 pixels
The main alphanumeric font used is 6x16 pixels (including inter-character space pixels). The display is logically divided into two sections, the left 36 columns, and the right 96 columns. In the left section the number of messages stored is depicted by a 7 segment numeric font emulation, 16x32 pixels.

LCD initialisation:

A2 A0 C8 23 81 34 2F A6

A2	LCD Bias Set
A0	ADC Select - Normal
C8	Common output mode select - Reverse
23	V5 regulator ratio
81 34	Contrast set
2F	Power control set
A6	Display normal/reverse – normal

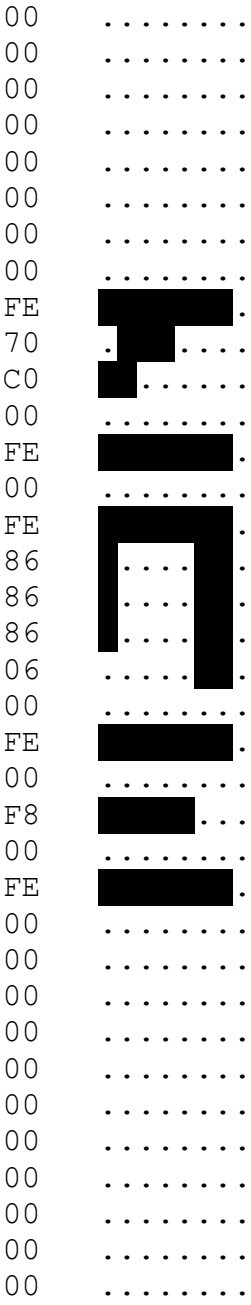
D5 00 EE D2 00 A4 AD 00 AC 40

D5 00	
EE	Clear read-modify-write
D2 00	
A4	Display all points - OFF
AD 00	Static indicator - ON, Display state = OFF (no blinking)
AC	Static indicator - OFF
40	Display start line set - 0x00

B0 10 00 Page Address Set - Cursor(0,0x00)

00 00 00 00 00 00 00 00 FE 70 C0 00 FE 00 FE 86 86 86 06 00 FE 00 F8 00 FE 00 00 00 00 00 00 00 00 00 00 00

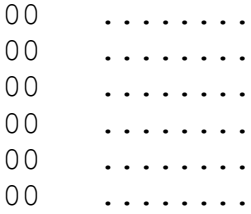
Draw top half of the letters



B1 10 00 Page Address Set - Cursor(1,0x00)

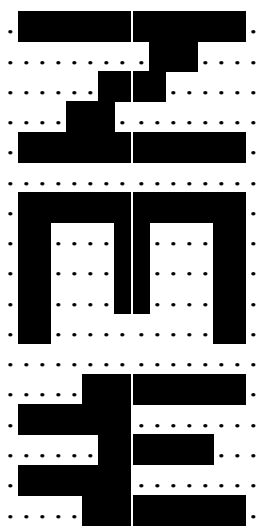
00 00 00 00 00 00 00 00 7F 00 03 0E 7F 00 7F 61 61 61 60 00 07 7F 03 7F 07 00 00 00 00 00 00 00 00 00 00 00

Draw bottom half of the letters



```
00    ........
00    ........
7F    .#######
00    ........
03    ......##
0E    ....###.
7F    .#######
00    ........
7F    .#######
61    .##....#
61    .##....#
61    .##....#
60    .##.....
00    ........
07    .....###
7F    .#######
03    ......##
7F    .#######
07    .....###
00    ........
00    ........
00    ........
00    ........
00    ........
00    ........
00    ........
00    ........
00    ........
00    ........
```

Together the two rows display " NEW " as depicted here sideways, (there is no gap between the rows on the actual LCD display)



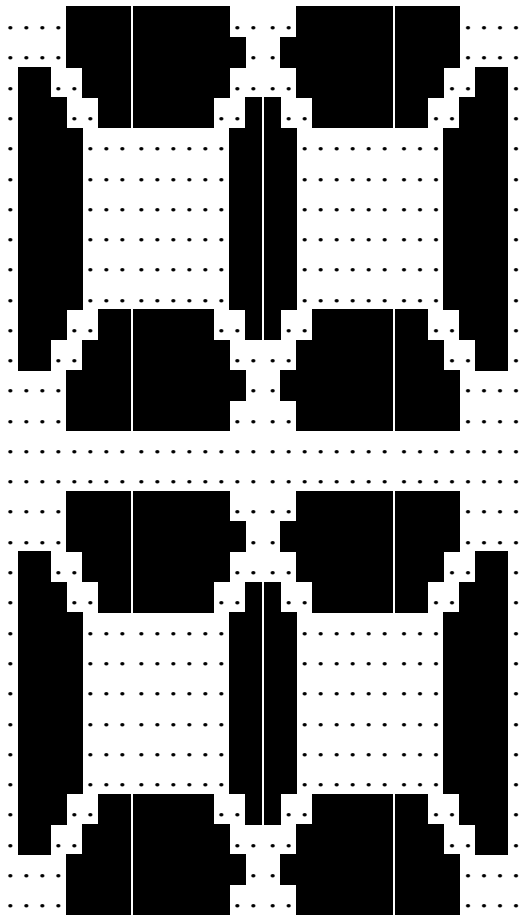
On the left hand part of the display numerals are displayed in a “7 segment” digit format that uses 4 rows of graphics memory for one line of digits.

```
B2 10 00   Page Address Set - Cursor(2,0x00)
00 F0 F0 E6 CE 1E 1E 1E 1E 1E 1E CE E6 F0 F0 00 00 F0 F0 E6 CE 1E 1E
1E 1E 1E 1E CE E6 F0 F0 00 00 00 00 00
B3 10 00   Page Address Set - Cursor(3,0x00)
00 3F 7F 3F 9F C0 C0 C0 C0 C0 C0 9F 3F 7F 3F 00 00 3F 7F 3F 9F C0 C0
C0 C0 C0 C0 9F 3F 7F 3F 00 00 00 00 00
B4 10 00   Page Address Set - Cursor(4,0x00)
00 FC FE FC F9 03 03 03 03 03 03 F9 FC FE FC 00 00 FC FE FC F9 03 03
03 03 03 03 F9 FC FE FC 00 00 00 00 00
B5 10 00   Page Address Set - Cursor(5,0x00)
00 0F 0F 67 73 78 78 78 78 78 78 73 67 0F 0F 00 00 0F 0F 67 73 78 78
78 78 78 78 73 67 0F 0F 00 00 00 00 00
```

I haven't shown each byte –> pixel sequence here and the following displays, and have also tended to leave off the leading and trailing spaces. But here the idea is the same as for “NEW” above, but using four rows of graphics to build up the display of two digits.

So the four successive rows form two digits as depicted here sideways (there is no gap between the rows on the actual LCD display)

```
"88 "
```



D2 00 A4 AD 00 AC 40

D2 00

A4 Display all points - OFF

AD 00 Static indicator - ON, Display state = OFF (no blinking)

AC Static indicator - OFF

40 Display start line set - 0x00

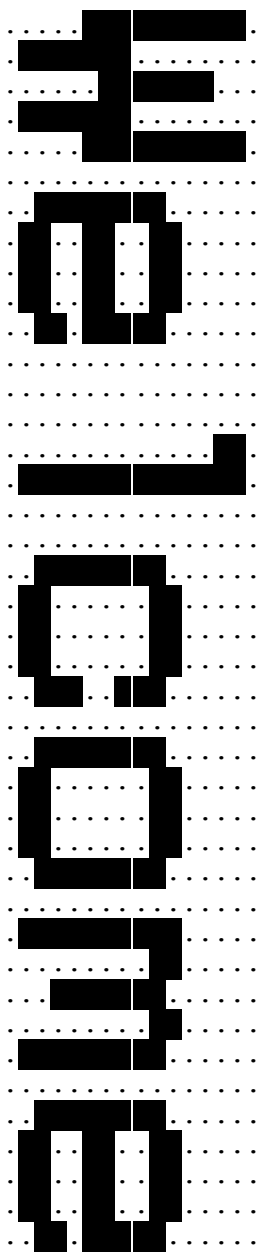
B0 12 04 Page Address Set - Cursor(0,0x24)

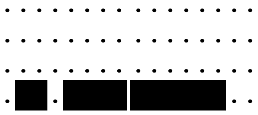
```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FE 00
F8 00 FE 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 C0 60 60 60 C0 00 C0 60 60 60 C0
00 E0 60 C0 60 C0 00 C0 60 60 60 C0 00 00 00 FC 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

B1 12 04 Page Address Set - Cursor(1,0x24)

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 07 7F
03 7F 07 00 3F 66 66 66 37 00 00 00 00 7F 00 00 3F 60 60 60 39 00 3F 60 60 60 3F
00 7F 00 1F 00 7F 00 3F 66 66 66 37 00 00 00 6F 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

" **Welcome!** "





B2 12 04 Page Address Set - Cursor(2,0x24)
00 00 00 00 00 00 00 FE 86 86 86 FC 00 00 00 06 FE 00 00 C0 60 60 60 C0 00 C0 60
60 60 C0 00 C0 60 60 60 C0 00 C0 60 60 60 C0 00 00 00 00 00 00 00 FE 00 F8 00 FE
00 C0 60 60 60 C0 00 00 00 E6 00 00 00 60 FE 60 60 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B3 12 04 Page Address Set - Cursor(3,0x24)
00 00 00 00 00 00 00 7F 01 01 01 00 00 00 00 00 7F 00 00 3F 66 66 66 37 00 3C 66
66 66 7F 00 31 62 66 64 38 00 3F 66 66 66 37 00 00 00 00 00 00 07 7F 03 7F 07
00 3C 66 66 66 7F 00 00 00 7F 00 00 00 00 3F 60 60 00 00 00 00 60 60 00 00 00 00
60 60 00 00 00 00 60 60 00 00 00 00 00 00 00

" Please Wait... "
(I haven't rendered the byte->pixel image)

B4 12 04 Page Address Set - Cursor(4,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B5 12 04 Page Address Set - Cursor(5,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

"   "

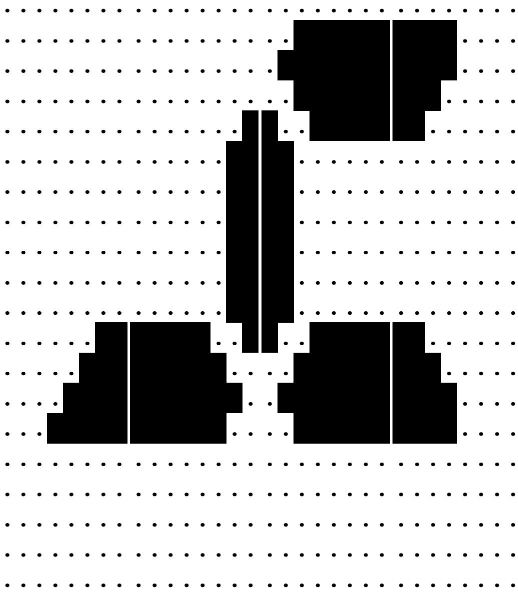
AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40

AF Display ON
F0
A2 CD Bias Set
A0 ADC Select - Normal
C8 Common output mode select - Reverse
23 V5 regulator ratio
81 34 Contrast set
2F Power control set
A6 Display normal/reverse - normal
D5 00
EE Clear read-modify-write
D2 00
A4 Display all points - OFF
AD 00 Static indicator - ON, Display state = OFF (no blinking)
AC Static indicator - OFF
40 Display start line set - 0x00

B0 10 00 Page Address Set - Cursor(0,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00
B1 10 00 Page Address Set - Cursor(1,0x00)

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00
B2 10 00 Page Address Set - Cursor(2,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 F0 F0 E0 C0 00 00 00 00 00 00
C0 E0 F0 F0 00 00 00 00 00
B3 10 00 Page Address Set - Cursor(3,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 7F 3F 9F C0 C0 C0 C0 C0 C0
9F 3F 7F 3F 00 00 00 00 00
B4 10 00 Page Address Set - Cursor(4,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 03 03 03 03 03 03
F9 FC FE FC 00 00 00 00 00
B5 10 00 Page Address Set - Cursor(5,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
03 07 0F 1F 00 00 00 00 00

" 4 "



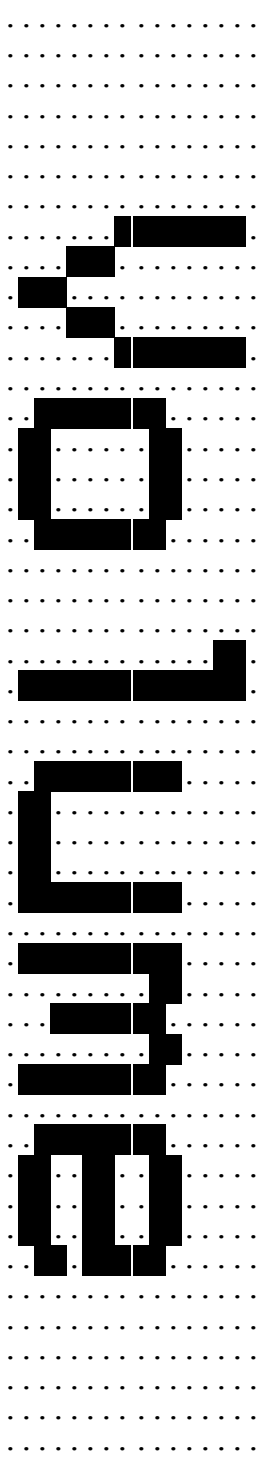
D2 00 A4 AD 00 AC 40
D2 00
A4 Display all points - OFF
AD 00 Static indicator - ON, Display state = OFF (no blinking)
AC Static indicator - OFF
40 Display start line set - 0x00

B0 12 04 Page Address Set - Cursor(0,0x24)
00 06 06 FE 06 06 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 FE 00 80 40 20 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B1 12 04 Page Address Set - Cursor(1,0x24)
00 00 00 7F 00 00 00 3C 66 66 66 7F 00 00 00 00 7F 00 00 7F 03 04 18 60 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

"Talk "
(I haven't rendered the byte->pixel image)

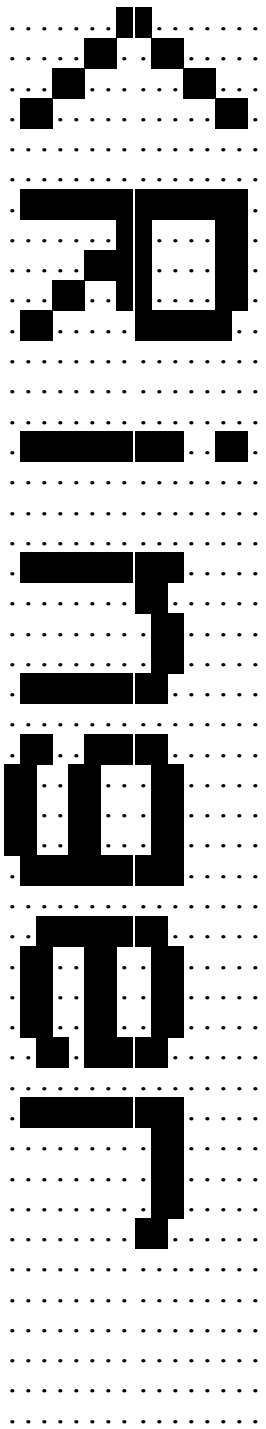
```
B2 12 04      Page Address Set - Cursor(2,0x24)
00 00 00 00 00 00 00 FE 00 00 00 FE 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 E0 00
00 00 E0 00 E0 60 C0 60 C0 00 C0 60 60 60 C0 00 00 00 00 00 00 00 FE 78 E0 78 FE
00 C0 60 60 60 C0 00 60 80 00 80 60 00 00 00 E6 00 00 00 E0 60 C0 60 C0 00 E0 00
00 00 E0 00 E0 60 C0 60 C0 00 00 00 00 00 00
B3 12 04      Page Address Set - Cursor(3,0x24)
00 00 00 00 00 00 00 01 0E 70 0E 01 00 3F 60 60 60 3F 00 00 00 00 7F 00 00 3F 60
60 60 7F 00 7F 00 1F 00 7F 00 3F 66 66 66 37 00 00 00 00 00 00 00 7F 00 07 00 7F
00 3C 66 66 66 7F 00 60 19 06 19 60 00 00 00 7F 00 00 00 7F 00 1F 00 7F 00 3F 60
60 60 7F 00 7F 00 1F 00 7F 00 00 00 00 00 00
```

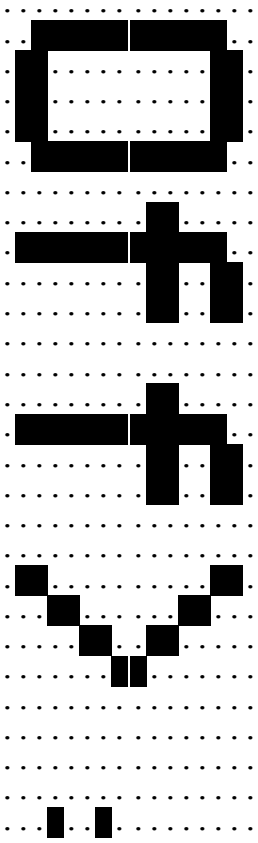
" Volume Maximum "



```
B4 12 04      Page Address Set - Cursor(4,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 80 60 18 06 00 00 FE 86 86 86 FC 00 00 00
E6 00 00 00 E0 C0 60 60 C0 00 C0 60 60 60 E0 00 C0 60 60 60 C0 00 E0 60 60 60 C0
00 00 00 00 00 00 00 FC 06 06 06 FC 00 60 FC 66 66 00 00 60 FC 66 66 00 00 06 18
60 80 00 00 00 00 00 00 00 00 00 00 00 00 00
B5 12 04      Page Address Set - Cursor(5,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 01 06 18 60 00 00 7F 01 07 19 60 00 00 00
7F 00 00 00 7F 00 00 00 7F 00 67 CC CC CC 7F 00 3F 66 66 66 37 00 7F 00 00 00 00
00 00 00 00 00 00 00 3F 60 60 60 3F 00 00 7F 00 00 00 00 00 7F 00 00 00 00 60 18
06 01 00 00 00 00 12+00 00 00 00 00 00 00 00 00
```

" **<Ringer Off>:** "





```
AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40
AF          Display ON
F0
A2          LCD Bias Set
A0          ADC Select - Normal
C8          Common output mode select - Reverse
23          V5 regulator ratio
81 34       Contrast set
2F          Power control set
A6          Display normal/reverse - normal
D5 00
EE          Clear read-modify-write
D2 00
A4          Display all points - OFF
AD 00       Static indicator - ON, Display state = OFF (no blinking)
AC          Static indicator - OFF
40          Display start line set - 0x00

B0 10 00    Page Address Set - Cursor(0,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00
B1 10 00    Page Address Set - Cursor(1,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00
B2 10 00    Page Address Set - Cursor(2,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 F0 F0 E0 C0 00 00 00 00 00 00 00 00 00 00 00
C0 E0 F0 F0 00 00 00 00 00
B3 10 00    Page Address Set - Cursor(3,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 7F 3F 9F C0 C0 C0 C0 C0 C0 C0 C0 C0 C0 C0
9F 3F 7F 3F 00 00 00 00 00
B4 10 00    Page Address Set - Cursor(4,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 03 03 03 03 03 03 03 03 03 03 03
F9 FC FE FC 00 00 00 00 00
B5 10 00    Page Address Set - Cursor(5,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
03 07 0F 1F 00 00 00 00 00
```

" 4 "

(I haven't rendered the byte->pixel image)

```
AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40
AF          Display ON
F0
A2          LCD Bias Set
A0          ADC Select - Normal
C8          Common output mode select - Reverse
23          V5 regulator ratio
81 34       Contrast set
2F          Power control set
A6          Display normal/reverse - normal
D5 00
EE          Clear read-modify-write
D2 00
A4          Display all points - OFF
AD 00       Static indicator - ON, Display state = OFF (no blinking)
AC          Static indicator - OFF
40          Display start line set - 0x00
```

```
B0 10 00        Page Address Set - Cursor(0,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B1 10 00        Page Address Set - Cursor(1,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B2 10 00        Page Address Set - Cursor(2,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 F0 F0 E0 C0 00 00 00 00 00 00 C0 E0 F0 F0 00 00
00 00 00 00
B3 10 00        Page Address Set - Cursor(3,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 7F 3F 9F C0 C0 C0 C0 C0 C0 9F 3F 7F 3F 00 00
00 00 00 00
B4 10 00        Page Address Set - Cursor(4,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 03 03 03 03 03 03 F9 FC FE FC 00 00
00 00 00 00
B5 10 00        Page Address Set - Cursor(5,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 03 07 0F 1F 00 00
00 00 00 00
```

" 4 "

(I haven't rendered the byte->pixel image)

```
AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40
AF              Display ON
F0
A2              LCD Bias Set
A0              ADC Select - Normal
C8              Common output mode select - Reverse
23              V5 regulator ratio
81 34           Contrast set
2F              Power control set
A6              Display normal/reverse - normal
D5 00
EE              Clear read-modify-write
D2 00
A4              Display all points - OFF
AD 00           Static indicator - ON, Display state = OFF (no blinking)
AC              Static indicator - OFF
40              Display start line set - 0x00

B0 10 00        Page Address Set - Cursor(0,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B1 10 00        Page Address Set - Cursor(1,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B2 10 00        Page Address Set - Cursor(2,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 F0 F0 E0 C0 00 00 00 00 00 00 C0 E0 F0 F0 00 00
00 00 00 00
B3 10 00        Page Address Set - Cursor(3,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 7F 3F 9F C0 C0 C0 C0 C0 C0 9F 3F 7F 3F 00 00
00 00 00 00
B4 10 00        Page Address Set - Cursor(4,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 03 03 03 03 03 03 F9 FC FE FC 00 00
00 00 00 00
B5 10 00        Page Address Set - Cursor(5,0x00)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 03 07 0F 1F 00 00
00 00 00 00
```

" 4 "

(I haven't rendered the byte->pixel image)

AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40

AF	Display ON
F0	
A2	LCD Bias Set
A0	ADC Select - Normal
C8	Common output mode select - Reverse
23	V5 regulator ratio
81 34	Contrast set
2F	Power control set
A6	Display normal/reverse - normal
D5 00	
EE	Clear read-modify-write
D2 00	
A4	Display all points - OFF
AD 00	Static indicator - ON, Display state = OFF (no blinking)
AC	Static indicator - OFF
40	Display start line set - 0x00

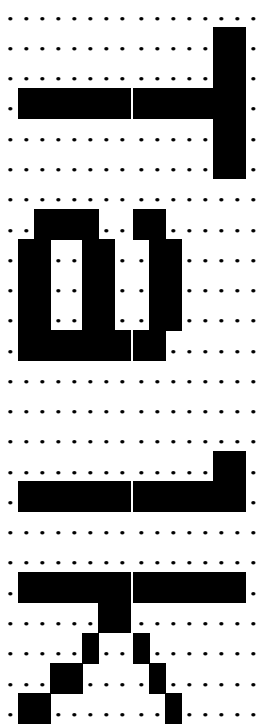
B0 12 04 Page Address Set - Cursor(0,0x24)

```
00 06 06 FE 06 06 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 FE 00 80 40 20 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

B1 12 04 Page Address Set - Cursor(1,0x24)

```
00 00 00 7F 00 00 00 3C 66 66 66 7F 00 00 00 00 7F 00 00 7F 03 04 18 60 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

"Talk "



B2 12 04 Page Address Set - Cursor(2,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B3 12 04 Page Address Set - Cursor(3,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B4 12 04 Page Address Set - Cursor(4,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B5 12 04 Page Address Set - Cursor(5,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

" "
" "
(I haven't rendered the byte->pixel image)

AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40
AF Display ON
F0
A2 LCD Bias Set
A0 ADC Select - Normal
C8 Common output mode select - Reverse
23 V5 regulator ratio
81 34 Contrast set
2F Power control set
A6 Display normal/reverse - normal
D5 00
EE Clear read-modify-write
D2 00
A4 Display all points - OFF
AD 00 Static indicator - ON, Display state = OFF (no blinking)
AC Static indicator - OFF
40 Display start line set - 0x00

B0 12 04 Page Address Set - Cursor(0,0x24)
00 06 06 FE 06 06 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 FE 00 80 40 20 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FC 06 86 66 FC 00 00 30
30 00 00 00 FC 06 86 66 FC 00 FC 06 86 66 FC
B1 12 04 Page Address Set - Cursor(1,0x24)
00 00 00 7F 00 00 00 3C 66 66 66 7F 00 00 00 00 7F 00 00 7F 03 04 18 60 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 66 61 60 3F 00 00 0C
0C 00 00 00 3F 66 61 60 3F 00 3F 66 61 60 3F
B2 12 04 Page Address Set - Cursor(2,0x24)
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
B3 12 04 Page Address Set - Cursor(3,0x24)

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

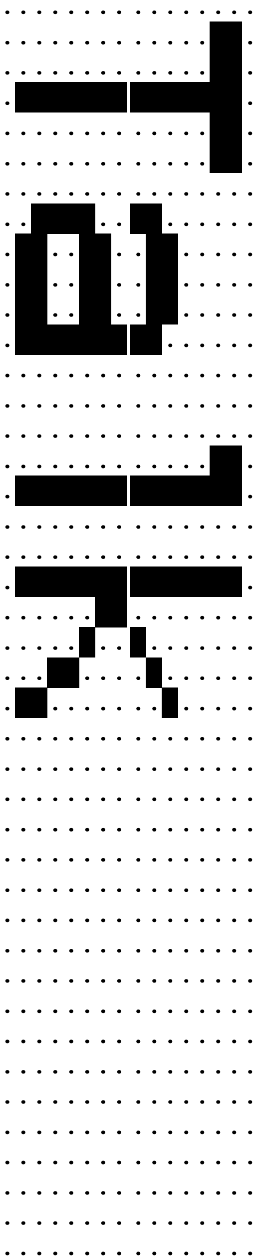
B4 12 04 Page Address Set - Cursor(4,0x24)

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

B5 12 04 Page Address Set - Cursor(5,0x24)

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```
“Talk        0:00”
“                ”
“                ”
```



AF F0 A2 A0 C8 23 81 34 2F A6 D5 00 EE D2 00 A4 AD 00 AC 40

AF Display ON
F0
A2 LCD Bias Set
A0 ADC Select - Normal
C8 Common output mode select - Reverse
23 V5 regulator ratio
81 34 Contrast set
2F Power control set
A6 Display normal/reverse – normal
D5 00
EE Clear read-modify-write
D2 00
A4 Display all points - OFF
AD 00 Static indicator - ON, Display state = OFF (no blinking)
AC Static indicator - OFF
40 Display start line set - 0x00

B0 12 04 Page Address Set - Cursor(0,0x24)

```
00 06 06 FE 06 06 00 C0 60 60 60 C0 00 00 00 06 FE 00 00 FE 00 80 40 20 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FC 06 86 66 FC 00 00 30
30 00 00 00 FC 06 86 66 FC 00 00 0C FE 00 00
```

B1 12 04 Page Address Set - Cursor(1,0x24)

```
00 00 00 7F 00 00 00 3C 66 66 66 7F 00 00 00 00 7F 00 00 7F 03 04 18 60 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 66 61 60 3F 00 00 0C
0C 00 00 00 3F 66 61 60 3F 00 00 60 7F 60 00
```

B2 12 04 Page Address Set - Cursor(2,0x24)

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

B3 12 04 Page Address Set - Cursor(3,0x24)

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

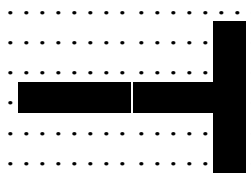
B4 12 04 Page Address Set - Cursor(4,0x24)

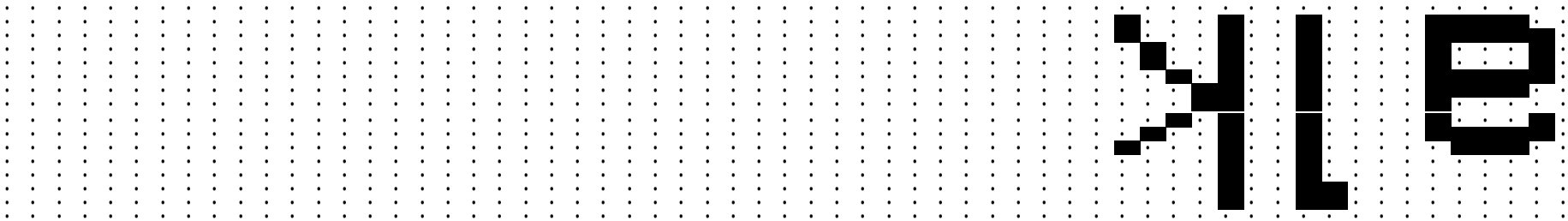
```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

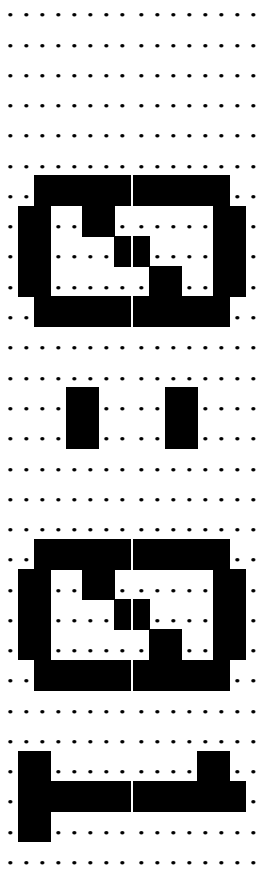
B5 12 04 Page Address Set - Cursor(5,0x24)

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

"Talk 0:01"
"
"







AF