Uniden DECT3216 phone LCD initialisation sequence

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LCD 10 pin, 4 wire SPI interface : RS, CS, DATA, CLK,?,?,?,?,GND,Vdd?

RS	Register select
	Low = command
	High = data
	asserted 333nS to 667ns before CS
CS	Chip select, active low
	asserted 12uS before first CLK pulse
	held low for duration of a byte until 667nS after last CLK rising
DATA	Data, write clocked on rising edge of CLK.
	Sent most-significant-bit first, 8 bit words, 1000uS delay between bytes.
CLK	Clock, 4.7uS (214kHz), only present when clocking data bits.
	3.24v
	1.93v
	3.41v
	-1.4v
GND	0V
	3.25v

LCD initialisation:

(each byte is a command, unless designated with a "d" as data)

20	4bits, 1 line, 5x8 dots?
0D	Display ON, Cursor OFF, Cursor Blink ON?
28	4bits, 2 lines, 5x8 dots?
13	?
50	
12d	
08	
18	
0E	
24	

100ms delay

26

10ms delay

27

15ms delay

1C

Store programmable character patterns

C0	Set CGRAM addr register to 0000000
04d	00▮00
0Ed	0▮▮▮0
1Fd	▮▮▮▮▮
11d	▮000▮
15d	▮0▮0▮
15d	▮0▮0▮
1Fd	▮▮▮▮▮
00d	00000
01d	0000▮
1Fd	▮▮▮▮▮
11d	▮000▮
11d	▮000▮
1Fd	▮▮▮▮▮
1Fd	▮▮▮▮▮
1Fd	▮▮▮▮▮
00d	00000
15d	▮0▮0▮
0Ad	0▮0▮0
15d	▮0▮0▮
0Ad	0▮0▮0
15d	▮0▮0▮
0Ad	0▮0▮0
15d	▮0▮0▮
00d	00000
0Ad	0▮0▮0
15d	▮0▮0▮
0Ad	0▮0▮0
15d	▮0▮0▮
0Ad	0▮0▮0
15d	▮0▮0▮
0Ad	0▮0▮0
00d	00000

Clear icon display

40	Set Icon addr register to 0
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	
00d	

00d
00d
00d

Clear text display

" "
" "

80 Set DDRAM addr register to 0000000
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d

20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d
20d

29
13
1C
50
12d
08
29
0E
27

Store programmable character patterns

```
C0      Set CGRAM addr register to 0000000
04d     00 00
0Ed     0   0
1Fd     
11d      000
15d      0 0
15d      0 0
1Fd     
00d     00000

01d     0000 
1Fd     
11d      000
11d      000
1Fd     
1Fd     
1Fd     
00d     00000

15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
00d     00000

0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
00d     00000

40      Set Icon addr register to 0
00d
00d
00d
00d
00d
00d
00d
00d
00d
00d
00d
00d
00d
03d      =2 bar battery icon? 02D = 1 bar
```

08d
00d

" **Welcome!** "
" **Please wait...** "
80 Set DDRAM addr register to 0000000
20d
20d
20d
20d
57d W
65d e
6Cd l
63d c
6Fd o
6Dd m
65d e
21d !
20d
20d
20d
20d

20d
50d P
6Cd l
65d e
61d a
73d s
65d e
20d
77d w
61d a
69d i
74d t
2Ed .
2Ed .
2Ed .
20d

4.5s delay

13
1C
50
12d
08
29
0E
27

Store programmable character patterns

```
C0      Set CGRAM addr register to 0000000
04d     00 00
0Ed     0   0
1Fd     
11d      000
15d      0 0
15d      0 0
1Fd     
00d     00000

01d     0000 
1Fd     
11d      000
11d      000
1Fd     
1Fd     
1Fd     
00d     00000

15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
00d     00000

0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
15d      0 0 
0Ad     0 0 0
00d     00000

40      Set Icon addr register to 0
00d
00d
00d
00d
00d
00d
00d
00d
10d     bell icon?
00d
00d
00d
00d
03d     battery icon?
```

```
   08d
   00d

"                    "
"  Out Of Range      "
   80       Set DDRAM addr register to 0000000
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d
   20d

   20d
   20d
   4Fd      O
   75d      u
   74d      t
   20d
   4Fd      O
   66d      f
   20d
   52d      R
   61d      a
   6Ed      n
   67d      g
   65d      e
   20d
   20d

...

   40
   00d
   00d
   00d
   00d
   00d
   00d
   00d
   00d
   00d
   10d      bell off icon
   00d
```

```
00d
00d
00d
02d     battery one bar
08d     battery icon
00d

80
50d     P
6Cd     l
65d     e
61d     a
73d     s
65d     e
20d
70d     p
75d     u
74d     t
20d
6Fd     o
6Ed     n
20d
20d
20d
74d     t
68d     h
65d     e
20d
42d     B
61d     a
73d     s
65d     e
20d
63d     c
72d     r
61d     a
64d     d
6Cd     l
65d     e
2Ed     .

…
13
1C
50
12
08

29
0E
27

C0
```

```
04d
0Ed
1Fd
11d
15d
15d
1Fd
00d

01d
1Fd
11d
11d
1Fd
1Fd
1Fd
00d

15d
0Ad
15d
0Ad
15d
0Ad
15d
00d

0Ad
15d
0Ad
15d
0Ad
15d
0Ad
00d

40
00d
00d
00d
00d
00d
00d
00d
00d
10d
00d
00d
00d
00d
02d
08d
00d
```

```
" Ringer Volume  "
"- ------------ +"
  80
  20d
  52d    R
  69d    i
  6Ed    n
  67d    g
  65d    e
  72d    r
  20d
  56d    V
  6Fd    o
  6Cd    l
  75d    u
  6Dd    m
  65d    e
  20d
  20d
  2Dd    -
  20d
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  20d
  2Bd    +
```

…

init etc

…

```
" Ringer Volume  "
"- ████-------- +"
  40
  00d
  00d
  00d
  00d
  00d
  00d
  00d
  00d
  00d
  00d
```

```
  00d
  00d
  00d
  00d
  00d
  00d
  02d
  08d
  00d

  80
  20d
  52d    R
  69d    i
  6Ed    n
  67d    g
  65d    e
  72d    r
  20d
  56d    V
  6Fd    o
  6Cd    l
  75d    u
  6Dd    m
  65d    e
  20d
  20d
  2Dd    -
  20d
  FFd    ▌
  FFd    ▌
  FFd    ▌
  FFd    ▌
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  2Dd    -
  20d
  2Bd    +
```

…

init etc

…

"►Intercom "
" Bluetooth setup"

```
  80
  A8d    ►
  49d    I
```

6Ed n
74d t
65d e
72d r
63d c
6Fd o
6Dd m
20d
20d
20d
20d
20d
20d
20d
20d
42d B
6Cd l
75d u
65d e
74d t
6Fd o
6Fd o
74d t
68d h
20d
53d S
65d e
74d t
75d u
70d p