User's Manual

Models PD7000

TFT-7′ LCD Customer Display

INTERFACE SPECIFICATIONS

1. Communication

The interface specification are based on EIA RS232C baud rate 9600 bps, 8 data bits, no parity, 1 stop bits.

2. USB 2.0 Connector

Connector type: The interface specification are based on USB Transform RS232C .baud rate 9600 bps, 8 data bits, no parity, 1 stop bits.

3. Power connector

Connector type: USB POWER (DC5V 500MA)

4.Picture Upload

Photos uploaded to the customer display through the USB-B.

General commands instruction set list:

1. STX B n

Name：select baud rate

ACSII：<STX> B n

Decimal：002 066 n 48<=n=>55

Hex：02H 42H n 30H<=n=>37H

Description：When the power is turned on, the default value of n is 0(set to 9600)

ASCII n	Decimal n	Hex n	Baud rate
0	48	30H	9600
1	49	31H	4800
2	50	32H	2400
3	51	33H	1200
4	52	34H	600
5	53	35H	300

2. STX C n

Name：select command set

ACSII：<STX> C n

Decimal：002 067 n 48<=n=>58

Hex：02H 43H n 30H<=n=>3A

Description：When the power is turned on, the default value of n is 0(set to ESC/POS)

ASCII n	Decimal n	Hex n	Command set
0	**48**	**30H**	**CD5220**
1	49	31H	ESC/POS
2	50	32H	ADM787/788
3	51	33	DSP800
4	52	34	AEDEX
5	53	35	UTC-S
6	54	36	UTC-E
7	56	38	NCR POS
8	57	39	PD6000
9	58	3A	ICD2002

3. STX MD5 n

Name：select international fonts set

ACSII ：STX MD5 n

Decimal： 002 005 n 48<=n<=60

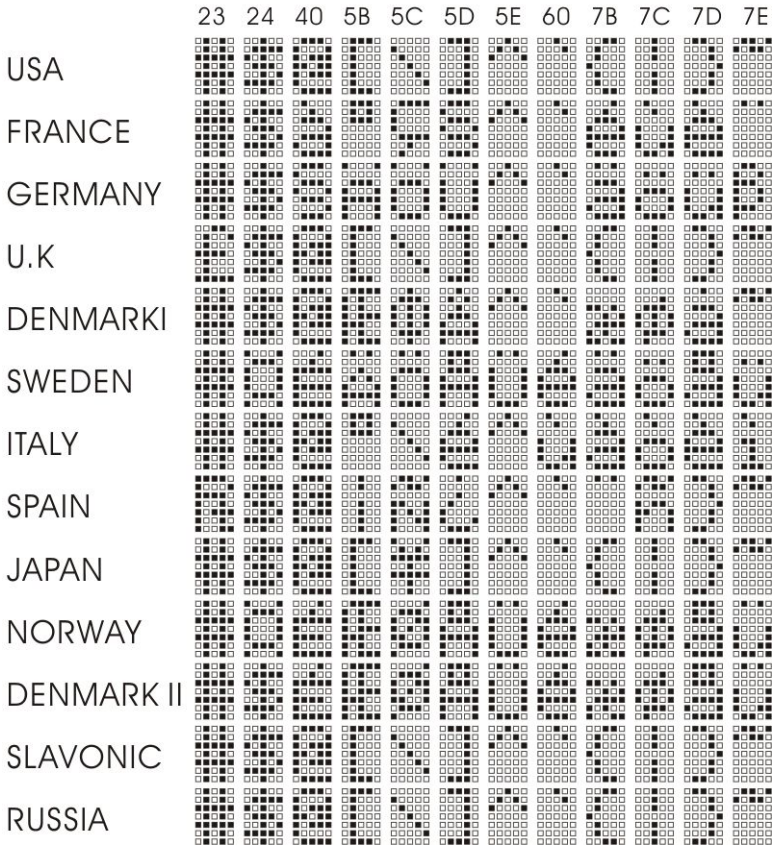
Hex：02H 05H n 30H<=n<=3CH

Description： select international fonts and stored in the internal EEPROM, the next power will continue to use this setting. When the power is turned on, the default value of n is A(set to U.S.A.)

ASCII n	Decimal n	Hex n	Country
0	48	30H	U.S.A
1	49	31H	FRANCE
2	50	32H	GERMANY
3	51	33H	U.K
4	52	34H	DENMARKI
5	53	35H	SWEDEN
6	54	36H	ITALY
7	55	37H	SPAIN
8	56	38H	JAPAN
9	57	39H	NORWAY
A	58	3AH	DENMARKII
B	59	3BH	SLAVONIC
C	60	3CH	RUSSIA

select international fonts the character differences, please refer to the following:

国际字符码表（主要列出不同的内容）



4. STX MD6 n

Name：Select the Extended Character Font Table

ACSII ：STX MD6 n

Decimal：002 006 n 48<=n<=56

Hex：：02H 06H n 30H<=n<=38H

Description：Select extended character font table and stored in the internal EEPROM, the next power will continue to use this setting.Use the font stored in 80H ... FFH.

Decimal n	Hex n	Extended Character Font Table(80H…FFH)
48	30H	U.S.A. and Standard Europe
49	31H	Katakana for Japan
50	32H	Multilingual
51	33H	Portuguese
52	34H	Canadian French
53	35H	Nordic
54	36H	SLAVONIC
55	37H	RUSSIA
56	38H	Turkish

5. STX 3 f

Name：Picture upload set

ACSII ：STX 3 f

Decimal： 002 051 102

Hex：02H 33H 66H

Description：select international fonts and stored in the internal EEPROM, the next power will continue to use this setting.

6. STX 3 h

Name：Photos uploaded to finish setting

ACSII ：STX 3 h

Decimal：002 051 104

Hex：：02H 33H 68H

Description：Select extended character font table and stored in the internal EEPROM, the next power will continue to use this setting.

EPSON ESC/POS

commands instruction set list

1. US MD1

Name：Select overwrite mode

ACSII：US MD1

Decimal：31 1

Hex：1F 01

Description：In overwriting mode, entering a character code moves to the left end of the lower line when the cursor is at the right end of the upper line, and to the left end of the upper line when the cursor is at the right end of the lower line. When the power is turned on, this mode is selected defaultly.

2. US MD2

Name：Select vertical scroll mode

ACSII：US MD2

Decimal：31 2

Hex：1F 02

Description：In vertical scroll mode, entering a character code moves the cursor to the left end of the lower line when the cursor ia at the right end of the upper line, scrolls the characters displayed on the lower line, and clears the lower line when the cursor is at the right end of the lower line. At this time the cursor is moved to the left end of the lower line.

3. US MD3

Name：Select horizontal scroll mode

ACSII：US MD3

Decimal：31 3

Hex：1F 03

Description： In horizontal scroll mode, entering a character code scrolls all displayed characters one character to the left, then displays the new character at the right end.

4. BS

Name：move the cursor one character position to the left

ACSII：BS

Decimal：8

Hex：08

Description：When the cursor is at the left end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, it is moved to the right end of the lower line.

2) Vertical scroll mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, the display on the upper line is scrolled to the lower line and the upper line is cleared. At this time the cursor is moved to the right end of the upper line.

3) Horizontal scroll mode : All characters on the current line are scrolled on character to the right. The cursor is not moved, but the character area at the left end is cleared.

5. HT

Name：move the cursor one character position to the right

ACSII：HT

Decimal：9

Hex：09

Description：When the cursor is at the right end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, it is moved to the left end of the upper line.

2) Vertical scroll mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, the display on the lower line is scrolled to the upper line and the lower line is cleared.At this time, the cursor is moved to the left end of the lower line.

3)Horizontal scroll line : All characters on the current line are scrolled one character to the left.The cursor is not moved, but the character area at the right end is cleared.

6. US LF

Name：move the cursor up one line

ACSII：US LF

Decimal：31 10

Hex：1F 0A

Description：When the cursor is on the upper line, the operation of this command depends on the display mode,as follows:

1)Overwrite mode :The cursor is moved to the same column on the lower line.

2)Vertical scroll mode :The characters displayed on the upper line are scrolled to the lower line and the upper line iscleared. The cursor remains at the same position.

3)Horizontal scroll mode :The cursor is not moved.

7. LF

Name：move the cursor down one line

ACSII：LF

Decimal：10

Hex：0A

Description：When the cursor is on the lower line, the operation of this command depends on the display mode,as follows:

1)Overwrite mode :The cursor is moved to the same column on the upper line.

2)Vertical scroll mode :The characters displayed in the lower line are scrolled to the upper line and the lower line is cleared. The cursor remains at the same position.

3)Horizontal scroll mode :The cursor is not moved.

8. CR

Name：move the cursor to left-most position on the current line

ACSII：CR

Decimal：13

Hex：0D

9. US CR

Name：move the cursor to the right-end position on the current line

ACSII：US CR

Decimal：31 13

Hex：1F 0D

10. HOM

Name：move the cursor to the left-end position on the upper line (home position)

ACSII：HOM

Decimal：11

Hex：0B

11. US B

Name：move the cursor to the 20th column of the lower line

ACSII：US B

Decimal：31 66

Hex：1F 42

12. US $ x y

Name：move cursor to specified position

ACSII：US $ x y

Decimal：31 36 x y

Hex：1F 24 x y

Description：moves the cursor to the *x*th column on the *y*th line.1<=x<=20,y=1,2

13. ESC @

Name：initialize display

ACSII：ESC @

Decimal：27 64

Hex：1B 40

Description：The software settings are reset to their power-on values. After initializing the display, the display screen is cleared and the cursor moves to the home position.

14. CLR

Name：clear display screen

ACSII：CLR

Decimal：12

Hex：0C

Description：Clear all the displayed characters.After this command is executed, the cursor moves to the home position.

15. CAN

Name：clear cursor line, and clear string mode

ACSII：CAN

Decimal：24

Hex：18

Description：Clears the line containing the cursor.After this command is executed, the cursor moves to the left-end position on the current line.

16. US C n

Name：set cursor ON/OFF

ACSII： US C n

Decimal：31 67 n

Hex：1F 43 n

Description：Turns the cursor on or off.

When n =0, the cursor is turned off.

When n =1, the cursor is turned on.

17. US . n

Name：display char ‘n’ and ‘.’

ACSII：US . n

Decimal：31 46 n

Hex：1F 2E n

Description：20H<=n<=FFH

18. US , n

Name：display char ‘n’ and ‘,’

ACSII：US , n

Decimal：[031][044]n

Hex：[1FH][2CH]n

Description：20H<=n<=FFH

19. US ; n

Name：display char ‘n’ and ‘;’

ACSII：US ; n

Decimal：31 59 n

Hex：1F 3B n

Description：20H<=n<=FFH

20. US E n

Name：Sets or cancels the blink interval of the display screen

ACSII：US E n

Decimal：31 69 n

Hex：1F 45 n

Description： n specifies the blink interval. When n = 0, the display is kept on(cancels blinking).

When n = FF Hex (255 decimal), the display is turned off but the contents of the display are maintained.

When the power is turned on, n = 0 is selected defaultly.

21. ESC R n

Name：select international fonts set

ACSII：ESC R n

Decimal：[027][082]n 32<=n<=44

Hex：[1BH][52H]n 00H<=n<=0CH

Description：When the power is turned on, the default value of n is SPACE(set to U.S.A.)

Decimal n	Hex n	Country
0	00H	U.S.A
1	01H	FRANCE
2	02H	GERMANY
3	03H	U.K.
4	04H	DENMARKI
5	05H	SWEDEN
6	06H	ITALY
7	07H	SPAIN
8	08H	JAPAN.
9	09H	NORMAY
10	0AH	DENMARKII
11	0BH	SLAVONIC
12	0CH	RUSSIA

22. ESC t n

Name：select fonts ,ASCII code or JIS code

ACSII： ESC t n

Decimal：[027][116] n

Hex：[1BH][74H] n

Description： When the power is turned on, the default value of n is 0(set to U.S.A. and Standard Europe)

CD 5200/20

commands instruction set list

1. ESC DC1

Name：Select overwrite mode

ACSII：ESC DC1

Decimal：27 17

Hex：1B 11

Description：In overwriting mode, entering a character code moves to the left end of the lower line when the cursor is at the right end of the upper line, and to the left end of the upper line when the cursor is at the right end of the lower line. When the power is turned on, this mode is selected defaultly.

2. ESC DC2

Name：Select vertical scroll mode

ACSII：ESC DC2

Decimal：27 18

Hex：1B 12

Description：In vertical scroll mode, entering a character code moves the cursor to the left end of the lower line when the cursor ia at the right end of the upper line, scrolls the characters displayed on the lower line, and clears the lower line when the cursor is at the right end of the lower line. At this time the cursor is moved to the left end of the lower line.

3. ESC DC3

Name：Select horizontal scroll mode

ACSII：ESC DC3

Decimal：27 19

Hex：1B 13

Description：In horizontal scroll mode, entering a character code scrolls all displayed characters one character to the left, then displays the new character at the right end.

4. ESC Q A d1 d2 d3 …… dn CR

Name：set the string display mode, write string to upper line

ACSII：ESC Q A d1 d2 d3 …… dn CR

Decimal：27 81 65 d1 d2 d3 …… dn 13

Hex：1B 51 41 d1 d2 d3 …… dn 0D

Description：write string (d1 d2 d3 …… dn) to upper line. 20H<=dn<=FFH, 1<= n<=20.

5. ESC Q B d1 d2 d3 …… dn CR

Name：set the string display mode, write string to lower line

ACSII：ESC Q B d1 d2 d3 …… dn CR

Decimal：27 81 66 d1 d2 d3 …… dn 13

Hex：1B 51 42 d1 d2 d3 …… dn 0D

Description：write string (d1 d2 d3 …… dn) to lower line. 20H<=dn<=FFH, 1<= n<=20.

6. ESC Q D d1 d2 d3 …… dn CR

Name：upper line message scroll continuously

ACSII：ESC Q D d1 d2 d3 …… dn CR

Decimal：27 81 68 d1 d2 d3 …… dn 13

Hex：1B 51 44 d1 d2 d3 …… dn 0D

Description：upper line message (d1 d2 d3 …… dn) scroll continuously. 20H<=dn<=FFH, 1<= n<=20.

7. ESC [D

Name：move the cursor one character position to the left

ACSII：ESC [D

Decimal：27 91 68

Hex：1B 5B 44

Description：When the cursor is at the left end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, it is moved to the right end of the lower line.

2) Vertical scroll mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, the display on the upper line is scrolled to the lower line and the upper line is cleared. At this time the cursor is moved to the right end of the upper line.

3) Horizontal scroll mode : All characters on the current line are scrolled on character to the right. The cursor is not moved, but the character area at the left end is cleared.

8. BS

Name：move the cursor one character position to the left

ACSII：BS

Decimal：8

Hex：08

Description：When the cursor is at the left end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, it is moved to the right end of the lower line.

2) Vertical scroll mode : When the cursor is at the end of the lower line, it is moved to the right end of the upper line. When it is at the end of the upper line, the display on the upper line is scrolled to the lower line and the upper line is cleared. At this time the cursor is moved to the right end of the upper line.

3) Horizontal scroll mode : All characters on the current line are scrolled on character to the right. The cursor is not moved, but the character area at the left end is cleared.

9. ESC [C

Name：move the cursor one character position to the right

ACSII：ESC [C

Decimal：27 91 67

Hex：1B 5B 43

Description：When the cursor is at the right end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, it is moved to the left end of the upper line.

2) Vertical scroll mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, the display on the lower line is scrolled to the upper line and the lower line is cleared.At this time, the cursor is moved to the left end of the lower line.

3)Horizontal scroll line : All characters on the current line are scrolled one character to the left.The cursor is not moved, but the character area at the right end is cleared.

10. HT

Name：move the cursor one character position to the right

ACSII：HT

Decimal：9

Hex：09

Description：When the cursor is at the right end of a line, the operation of this command depends on the display mode.

1) Overwrite mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, it is moved to the left end of the upper line.

2) Vertical scroll mode : When the cursor is at the right end of the upper line, it is moved to the left end of the lower line. When it is at the right end of the lower line, the display on the lower line is scrolled to the upper line and the lower line is cleared.At this time, the cursor is moved to the left end of the lower line.

3)Horizontal scroll line : All characters on the current line are scrolled one character to the left.The cursor is not moved, but the character area at the right end is cleared.

11. ESC [A

Name：move the cursor up one line

ACSII：ESC [A

Decimal：27 91 65

Hex：1B 5B 41

Description：When the cursor is on the upper line, the operation of this command depends on the display mode,as follows:

1)Overwrite mode :The cursor is moved to the same column on the lower line.

2)Vertical scroll mode :The characters displayed on the upper line are scrolled to the lower line and the upper line iscleared. The cursor remains at the same position.

3)Horizontal scroll mode :The cursor is not moved.

12. ESC [B

Name：move the cursor down one line

ACSII：ESC [B

Decimal：27 91 66

Hex：1B 5B 42

Description：When the cursor is on the lower line, the operation of this command depends on the display mode,as follows:

1)Overwrite mode :The cursor is moved to the same column on the upper line.

2)Vertical scroll mode :The characters displayed in the lower line are scrolled to the upper line and the lower line is cleared. The cursor remains at the same position.

3)Horizontal scroll mode :The cursor is not moved.

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13. LF

Name：move the cursor down one line

ACSII：LF

Decimal：10

Hex：0A

Description：When the cursor is on the lower line, the operation of this command depends on the display mode,as follows:

1)Overwrite mode :The cursor is moved to the same column on the upper line.

2)Vertical scroll mode :The characters displayed in the lower line are scrolled to the upper line and the lower line is cleared. The cursor remains at the same position.

3)Horizontal scroll mode :The cursor is not moved.

14. ESC [H

Name：move cursor to home position

ACSII：ESC [H

Decimal：27 91 72

Hex：1B 5B 48

Description：Moves the cursor to the left-end position on the upper line (home position).Home position indicates the first column of the upper line.

15. HOM

Name：move the cursor to the left-end position on the upper line (home position)

ACSII：HOM

Decimal：11

Hex：0B

16. ESC [K

Name：move the cursor to the 20th column of the lower line
ACSII：ESC [K
Decimal：27 91 75
Hex：1B 5B 4B

17. ESC [L

Name：move the cursor to left-most position on the current line
ACSII：ESC [L
Decimal：27 91 76
Hex：1B 5B 4C

18. CR

Name：move the cursor to left-most position on the current line
ACSII：CR
Decimal：13
Hex：0D

19. ESC [R

Name：move the cursor to the right-end position on the current line
ACSII：ESC [R
Decimal：27 91 82
Hex：1B 5B 52

20. ESC l x y

Name：move cursor to specified position
ACSII：ESC l x y
Decimal：27 108 x y
Hex：1B 6C x y
Description：moves the cursor to the *x*th column on the *y*th line.1<=x<=20,y=1,2

21. ESC @

Name：initialize display
ACSII：ESC @
Decimal：27 64
Hex：1B 40
Description：The software settings are reset to their power-on values. After initializing the display, the display screen is cleared and the cursor moves to the home position.

22. CLR

Name：clear display screen
ACSII：CLR
Decimal：12
Hex：0C
Description：Clear all the displayed characters.After this command is executed, the cursor

moves to the home position.

23. CAN

Name：clear cursor line, and clear string mode

ACSII：CAN

Decimal：24

Hex：18

Description：Clears the line containing the cursor.After this command is executed, the cursor moves to the left-end position on the current line.

24. ESC _ n

Name：set cursor ON/OFF

ACSII： ESC _ n

Decimal：27 95 n

Hex：1B 5F n

Description：Turns the cursor on or off.

When n =0, the cursor is turned off.

When n =1, the cursor is turned on.

25. ESC f n

Name：select international fonts set

ACSII：ESC f n

Decimal：27 102 n

Hex：1B 66 n

Description：When the power is turned on, the default value of n is A(set to U.S.A.)

ASCII n	Decimal n	Hex n	Country
A	65	41H	U.S.A
D	68	44H	DENMARKI
E	69	45H	DENMARKII
F	70	46H	FRANCE
G	71	47H	GERMANY
I	73	49H	ITALY
J	74	4AH	JAPAN.
L	76	4CH	SLAVONIC
N	78	4EH	NORMAY
R	82	52H	RUSSIA
S	83	53H	SPAIN
U	85	55H	U.K.
W	87	57H	SWEDEN

26. ESC c n

Name：select fonts ,ASCII code or JIS code

ACSII： ESC c n

Decimal：27 99 n

Hex：1B 63 n

Description：When the power is turned on, the default value of n is A(set to U.S.A. and Standard Europe)

ADM787/788 commands instruction set list

7.3 ADM787/788 Emulation Mode

ASCII Command	Hex. Code	Function Description
<CLR	0Ch	Clear display
<CR>	0Dh	Carriage return
<SLE1>	0Eh	Clear upper line and move cursor to upper left-end position
<SLE2>	0Fh	Clear bottom line and move cursor to bottom left-end position
<DC0> *n*	10h *n*	Set period to upper line, last *n* position *(31h≤n≤44h)*
<DC1> *n*	11h *n*	Set line blinking (*n=1: upper line, n=2: bottom line)*
<DC2> *n*	12h *n*	Clear Line Blinking (*n=1: upper line, n=2: bottom line)*
<SF1>	1Eh	Clear field 1 and move cursor to field 1, first position
<SF2>	1Fh	Clear field 2 and move cursor to field 2, first position

DSP-800 commands instruction set list

7.4 DSP-800 (Giga Tech) Emulation Mode

ASCII Command	Hex. Code	Function Description
<EOT><SOH> I *n* <ETB>	04h 01h 49h *n* 17h	Select international code set *(30h≤n≤3Fh, see Table 6.7 on Page-12)*
<EOT><SOH> P *n* <ETB>	04h 01h 50h *n* 17h	Move cursor to specified position *(31h≤n≤58h, n=31h:home position, n=58h:right-end of lower line)*
<EOT><SOH> C *n m* <ETB>	04h 01h 43h *n m* 17h	Clear display range from *n* position to *m* position and move cursor to *n* position *(31h≤n≤m≤58h)*
<EOT><SOH> S *n* <ETB>	04h 01h 53h *n* 17h	Save current display data to *n'th* layer for demo view data *(01h≤n≤03h or 31h≤n≤33h)*
<EOT><SOH> D *n* <ETB>	04h 01h 44h *n* 17h	Display the saved demo message *(01h≤n≤03h or 31h≤n≤33h)*
<EOT><SOH> A *n* <ETB>	04h 01h 41h *n* 17h	Brightness adjustment *(01h≤n≤04h or 31h≤n≤34h, 01h & 31h;lowest, 04h & 34h;100%)*
<EOT><SOH> F *n* <ETB>	04h 01h 46h *n* 17h	Blink display screen *(00h≤n≤FFh)*
<EOT><SOH> & *n* $p_1...p_5$ <ETB>	04h 01h 26h *n* $p_1...p_5$ 17h	Define download characters *(20h≤n)*
<EOT><SOH> ? *n* <ETB>	04h 01h 3Fh *n* 17h	Delete download characters *(20h≤n)*
<EOT><SOH> = *n* <ETB>	04h 01h 3Dh *n* 17h	Select peripheral device *(n=1:printer, n=2:display)*
<EOT><SOH> % <ETB>	04h 01h 25h 17h	Initialize display
<EOT><SOH> @ <ETB>	04h 01h 40h 17h	Execute self-test
<EOT><SOH> B *n* N <ETB>	04h 01h 42h *n* 4Eh 17h	Set baud-rate and parity *(31h≤n≤36h)*

AEDEX commands instruction set list

7.5 AEDEX Emulation Mode

ASCII Command	Hex. Code	Function Description
! # 1 d_1 d_2.....d_n <CR>	21h 23h 31h d_1 d_2.....d_n 0Dh	Upper line display *(1≤n≤20, 20h≤dn≤FFh)* -. Clear upper line: ! # 1 <CR>
! # 2 d_1 d_2.....d_n <CR>	21h 23h 32h d_1 d_2.....d_n 0Dh	Bottom line display *(1≤n≤20, 20h≤dn≤FFh)* -. Clear bottom line: ! # 2 <CR>
! # 4 d_1 d_2.....d_n <CR>	21h 23h 34h d_1 d_2.....d_n 0Dh	Upper line message scroll continuously *(1≤n≤40)*
! # 5 *hh:mm* <CR>	21h 23h 35h *hh:mm* 0Dh	Display time *(h,m=0~9)* -. Display previously set time: ! # 5 <CR>
! # 6 d_1 d_2.....d_n <CR>	21h 23h 36h d_1 d_2.....d_n 0Dh	Upper line message scroll one time *(1≤n≤40)*
! # 8 *n m* <CR>	21h 23h 38h *n m* 0Dh	Change attention code *(20h≤n,m)*
! # 9 d_1 d_2.....d_n <CR>	21h 23h 39h d_1 d_2.....d_n 0Dh	Two line display *(1≤n≤40)* -. Clear display: ! # 9 <CR>

UTC-S commands instruction set list

7.6 UTC Standard Emulation Mode

Command	Hex. Code	Function Description
<EOT> *n*	04h *n*	Display dimming *(n=20h:20%, 40h:40%, 60h:60%, FFh:100%)*
<BS>	08h	Back space
<HT>	09h	Horizontal tab
<LF>	0Ah	Line feed
<CR>	0Dh	Carriage return
<DLE> *n*	10h *n*	Display position *(00h≤n≤27h, n=00h:home position, 27h:right end of lower line)*
<DC1>	11h	Overwrite display mode
<DC2>	12h	Vertical scroll mode
<DC3>	13h	Cursor on
<DC4>	14h	Cursor off
<CAN>	18h	Clear to end of line
<EM>	19h	Clear to end of display
<SUB> *n*	1Ah *n*	Select international code set *(30h≤n≤3Fh, refer to Table 6.7 on Page-12)*
<ESC> d	1Bh 64h	Change to UTC enhanced mode
<FS>	1Ch	Flashing text start
<GS>	1Dh	Flashing text stop
<RS>	1Eh	Clear display and cursor home
<US>	1Fh	Reset

UTC-E commands instruction set list

7.7 UTC Enhanced Emulation Mode

ASCII Command	Hex. Code	Function Description
<SI>	0Fh	Flashing text start
<SO>	0Eh	Flashing text stop
<ESC> u A d_1 d_2.....d_n <CR>	1Bh 75h 41h d_1 d_2.....d_n 0Dh	Upper line display *(1≤n≤20, 20h≤dn≤FFh)* -. Clear upper line: <ESC> u A <CR>
<ESC> u B d_1 d_2.....d_n <CR>	1Bh 75h 42h d_1 d_2.....d_n 0Dh	Bottom line display *(1≤n≤20, 20h≤d_n≤FFh)* -. Clear bottom line: <ESC> u B <CR>
<ESC> u D d_1 d_2.....d_n <CR>	1Bh 75h 44h d_1 d_2.....d_n 0Dh	Upper line message scroll continuously *(1≤n≤40)*
<ESC> u E *hh:mm* <CR>	1Bh 75h 45h *hh:mm* 0Dh	Display time (*hh, mm=0~9*) -. Display previously set time: <ESC> u E <CR>
<ESC> u F d_1 d_2.....d_n <CR>	1Bh 75h 46h d_1 d_2.....d_n 0Dh	Upper line message scroll one time *(1≤n≤40)*
<ESC> u G <CR>	1Bh 75h 47h 0Dh	Disable menu buttons until next power up
<ESC> u H *s* d_1 d_2.....d_7 <CR>	1Bh 75h 48h *s* d_1 d_2.....d_7 0Dh	Define user-defined character -. *s: character code (20h≤s≤FFh)* -. d_1~d_7: *font data (00h≤d1~d7≤FFh)* -. Example: Euro "€" currency symbol design. b_7 b_6 b_5 b_4 b_3 b_2 b_1 b_0 Font data * * * 0 0 **1** **1** 0 d1 = 06h * * * 0 **1** 0 0 1 d2 = 09h * * * **1** **1** **1** 0 0 d3 = 1Ch * * * 0 **1** 0 0 0 d4 = 08h * * * **1** **1** **1** 0 0 d5 = 1Ch * * * 0 **1** 0 0 **1** d6 = 09h * * * 0 0 **1** **1** 0 d7 = 06h *****:*Don't care*
<ESC> u I d_1 d_2.....d_n <CR>	1Bh 75h 49h d_1 d_2.....d_n 0Dh	Two line display *(1≤n≤40)* -. Clear display: <ESC> u I <CR>
<ESC> u l *n* <CR>	1Bh 75h 6Ch *n* 0Dh	Select international code set *(30h≤n≤3Fh, refer to Table 6.7 on Page-12)*
<ESC> <RS> <CR>	1Bh 0Fh 0Dh	Change to UTC standard mode

NCR-POS commands instruction set list

7.9 NCR RealPOS Emulation Mode

ASCII Command	Function
<NUL> K *or* <BS>	Move cursor left (back space)
<NUL> M *or* <HT>	Move cursor right (horizontal tab)
<NUL> P *or* <LF>	Move cursor down (line feed)
<NUL> H	Move cursor up
<HOM>	Move cursor to home position
<NUL> G *or* <CR>	Move cursor to left-most position
<NUL> O	Move cursor to right-most position
<ESC> P *x y*	Move cursor to specified position
<CLR>	Clear display screen, and clear string mode
<CAN>	Clear cursor line, and clear string mode
<ESC> @	Initialize display
<ESC> <DC1>	Overwrite mode
<ESC> <DC2>	Vertical scroll mode
<ESC> <DC3>	Horizontal scroll mode
<US> E *n*	Set display screen blink interval
<ESC> _ *n*	Set cursor on/off
<US> <DC1> *n*	Set line blinking
<US> <DC2> *n*	Clear line blinking
<ESC> F A d_1 d_2 ..... d_n <CR>	Write string character to upper line
<ESC> F B d_1 d_2 ..... d_n <CR>	Write string character to lower line
<ESC> F D d_1 d_2 ..... d_n <CR>	Upper line message scroll continuously
<ESC> F O d_1 d_2 ..... d_n <CR>	Lower line message scroll continuously
<US> <MD1> *n*	Message vertical upper continuously
<US> <MD2> *n*	Message vertical down continuously

PD6000 commands instruction set list

7.10 PD6000 (Logic Controls) Emulation Mode

ASCII Command	Hex. Code	Function Description
<DC2>	12h	Vertical scroll mode
<DC1>	11h	Normal display mode
<EOT> *n*	04h *n*	Brightness control *(n=FFh, 60h, 40h, 20h)*
<BS>	08h	Back space
<HT>	09h	Horizontal tab
<LF>	0Ah	Line feed
<CR>	0Dh	Carriage return
<DLE> *n*	10h *n*	Digit select *(00h ≤ n ≤ 27h)*
<DC3>	13h	Cursor on
<DC4>	14h	Cursor off
<US>	1Fh	Reset
<ETX> *n* p_1.....p_5	03h *n* p_1.....p_5	Define user font *(20h≤n≤FFh, p_1.....p_5 pattern data)*
<ENQ> d_1.....d_n <CR>	05h d_1.....d_n 0Dh	Message scroll (up to 40 characters)
<SOH>	01h	Data to peripheral: All data following this command will be sent to the peripheral until a "Data to display" command is received.
! # <STX>	21h 23h 02h	Data to display: All data following this command will be sent to the pole display until a "Data to peripheral" command is received.

ICD-2002 commands instruction set list

7.11 ICD-2002 (Puritron) Emulation Mode

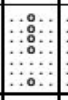
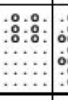
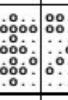
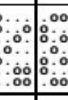
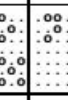
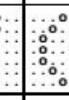
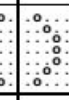
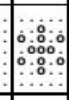
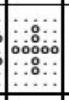
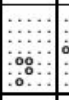
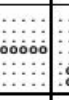
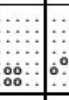
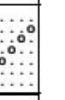
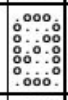
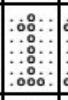
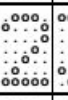
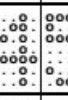
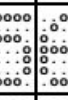
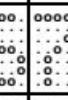
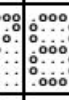
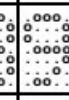
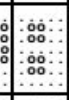
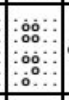
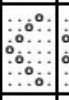
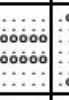
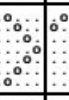
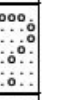
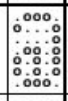
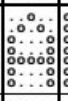
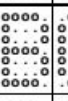
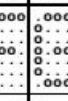
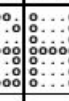
ASCII Command	Hex. Code	Function Description
<HT>	09h	Move cursor right (only valid in overwrite mode)
<BS>	08h	Move cursor left (only valid in overwrite mode)
<CR>	0Dh	Move cursor to left-end position (only valid in overwrite mode)
<ESC> @	1Bh 40h	Initialize customer display to initial state
<ESC> U	1Bh 55h	Select upper row as current row (initial default)
<ESC> D	1Bh 44h	Select lower row as current row
<ESC> A *n*	1Bh 41h *n*	Sets customer display disable or enable *(n="D", 44h: disable, n="E", 45h: enable)*
<ESC> C *r c*	1Bh 43h *r c*	Move cursor to specified position (only valid in overwrite mode) *(r=55h: upper line, r=44h: lower line, 1≤c≤20 : column number)*
<ESC> E *r n*	1Bh 45h *r n*	Set special effect or display mode of specified row. *r: 58h all rows; 55h upper row; 44h lower row* *n: 30h shift mode (default display mode); 31h rotation mode; 32h blink mode; 33h clear this row and switch to shift mode; 34h overwrite mode; 35h vertical mode*
<ESC> R *n*	1Bh 52h *n*	Set international code set sets *(30h≤n≤3Fh, refer to Table 6.7 on Page-12)*
<ESC> = *n*	1Bh 3Dh *n*	Select Peripheral *(n=1: printer, n=2: display, n=3: printer & display)*
<ESC> % *n*	1Bh 25h *n*	Select/cancel character user defined character *(n=0: selected, n=1: canceled)*
<ESC> & *n s* [p_n]*5	1Bh 26h *n s data*	Define user font pattern *n=code for first character, s=code for last character* *data=5 bytes required for each character*

ASCII (American Standard Code for Information Interchange) Code Table

Dec.	Hex.	Char.	ASCII Function	Description
0	00h	Ctrl-@	<NUL>	Null
1	01h	Ctrl-A	<SOH> or <MD1>	Start of Heading
2	02h	Ctrl-B	<STX> or <MD2>	Start of Text
3	03h	Ctrl-C	<ETX> or <MD3>	End of Text
4	04h	Ctrl-D	<EOT> or <MD4>	End of Transmission
5	05h	Ctrl-E	<ENQ> or <MD5>	Enquiry
6	06h	Ctrl-F	<ACK> or <MD6>	Acknowledge
7	07h	Ctrl-G	<BEL> or <MD7>	Bell (audible or attention signal)
8	08h	Ctrl-H	<BS> or <MD8>	Backspace
9	09h	Ctrl-I	<HT>	Horizontal Tabulation
10	0Ah	Ctrl-J	<LF> or <NL>	Line Feed or New Line
11	0Bh	Ctrl-K	<VT> or <HOM>	Vertical Tabulation or Home
12	0Ch	Ctrl-L	<FF> or <NP>	Form Feed or New Page
13	0Dh	Ctrl-M	<CR>	Carriage Return
14	0Eh	Ctrl-N	<SO> or <SLE1>	Shift Out
15	0Fh	Ctrl-O	<SI> or <SLE2>	Shift In
16	10h	Ctrl-P	<DLE>	Data Link Escape
17	11h	Ctrl-Q	<DC1>	Device Control 1
18	12h	Ctrl-R	<DC2>	Device Control 2
19	13h	Ctrl-S	<DC3>	Device Control 3
20	14h	Ctrl-T	<DC4>	Device Control 4 (Stop)
21	15h	Ctrl-U	<NAK>	Negative Acknowledge
22	16h	Ctrl-V	<SYN>	Synchronous Idle
23	17h	Ctrl-W	<ETB>	End of Transmission Block
24	18h	Ctrl-X	<CAN>	Cancel
25	19h	Ctrl-Y	<EM>	End of Medium
26	1Ah	Ctrl-Z	<SUB>	Substitute
27	1Bh	Ctrl-[	<ESC>	Escape
28	1Ch	Ctrl-\	<FS>	File Separator
29	1Dh	Ctrl-]	<GS>	Group Separator
30	1Eh	Ctrl-^	<RS> or <SF1>	Record Separator
31	1Fh	Ctrl-_	<US> or <SF2>	Unit Separator

Dec.	Hex.	Char.	Dec.	Hex.	Char	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.	Dec.	Hex.	Char.
32	20h	SP	48	30h	0	64	40h	@	80	50h	P	96	60h	`	112	70h	p
33	21h	!	49	31h	1	65	41h	A	81	51h	Q	97	61h	a	113	71h	q
34	22h	“	50	32h	2	66	42h	B	82	52h	R	98	62h	b	114	72h	r
35	23h	#	51	33h	3	67	43h	C	83	53h	S	99	63h	c	115	73h	s
36	24h	$	52	34h	4	68	44h	D	84	54h	T	100	64h	d	116	74h	t
37	25h	%	53	35h	5	69	45h	E	85	55h	U	101	65h	e	117	75h	u
38	26h	&	54	36h	6	70	46h	F	86	56h	V	102	66h	f	118	76h	v
39	27h	‘	55	37h	7	71	47h	G	87	57h	W	103	67h	g	119	77h	w
40	28h	(	56	38h	8	72	48h	H	88	58h	X	104	68h	h	120	78h	x
41	29h	)	57	39h	9	73	49h	I	89	59h	Y	105	69h	i	121	79h	y
42	2Ah	*	58	3Ah	:	74	4Ah	J	90	5Ah	Z	106	6Ah	j	122	7Ah	z
43	2Bh	+	59	3Bh	;	75	4Bh	K	91	5Bh	[	107	6Bh	k	123	7Bh	{
44	2Ch	,	60	3Ch	<	76	4Ch	L	92	5Ch	\	108	6Ch	l	124	7Ch	|
45	2Dh	-	61	3Dh	=	77	4Dh	M	93	5Dh	]	109	6Dh	m	125	7Dh	}
46	2Eh	.	62	3Eh	>	78	4Eh	N	94	5Eh	^	110	6Eh	n	126	7Eh	~
47	2Fh	/	63	3Fh	?	79	4Fh	O	95	5Fh	_	111	6Fh	o	127	7Fh	DEL

5*7 Dot Matrix Character Font Table (ASCII with PC-437)

Upper Nibble \ Lower Nibble		D3	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
		D2	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
		D1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
		D0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
D7	D6	D5	D6		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0																
0	0	0	1	1																
0	0	1	0	2																
0	0	1	1	3																
0	1	0	0	4																
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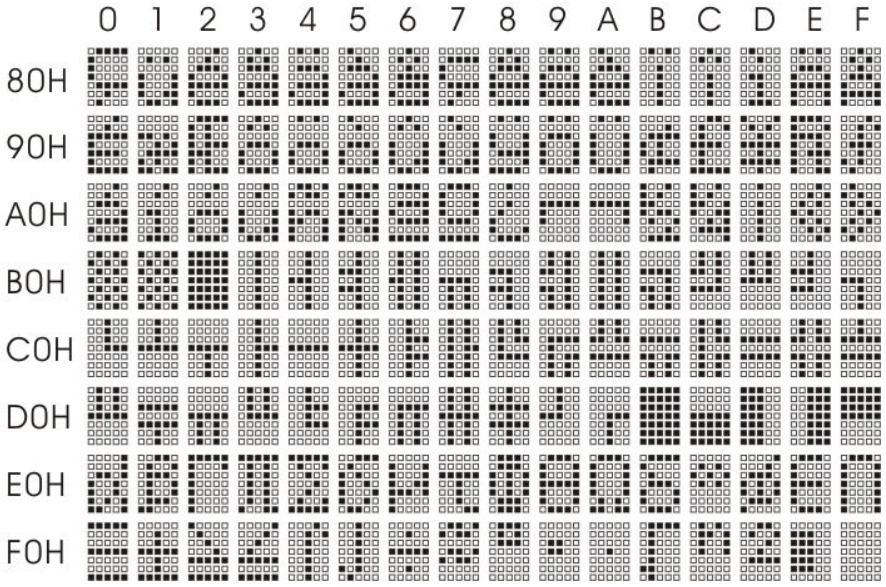

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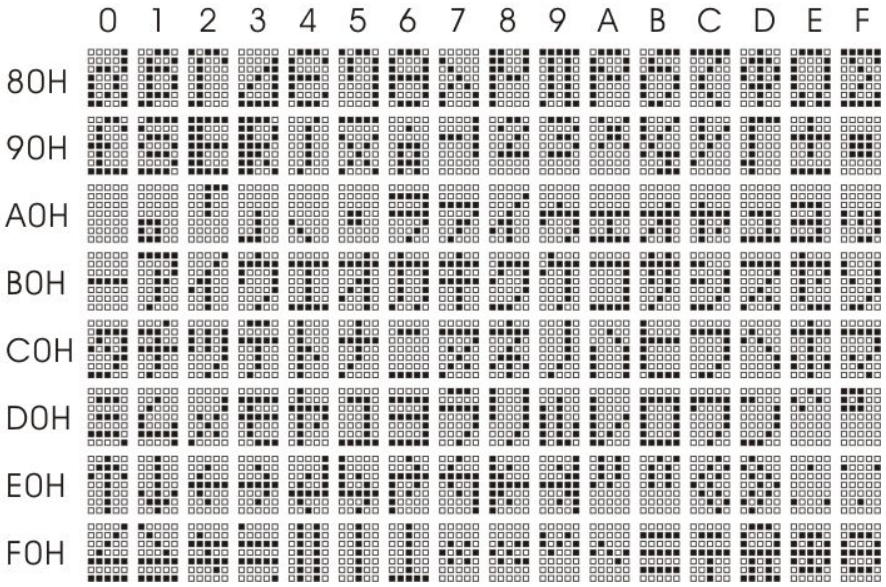

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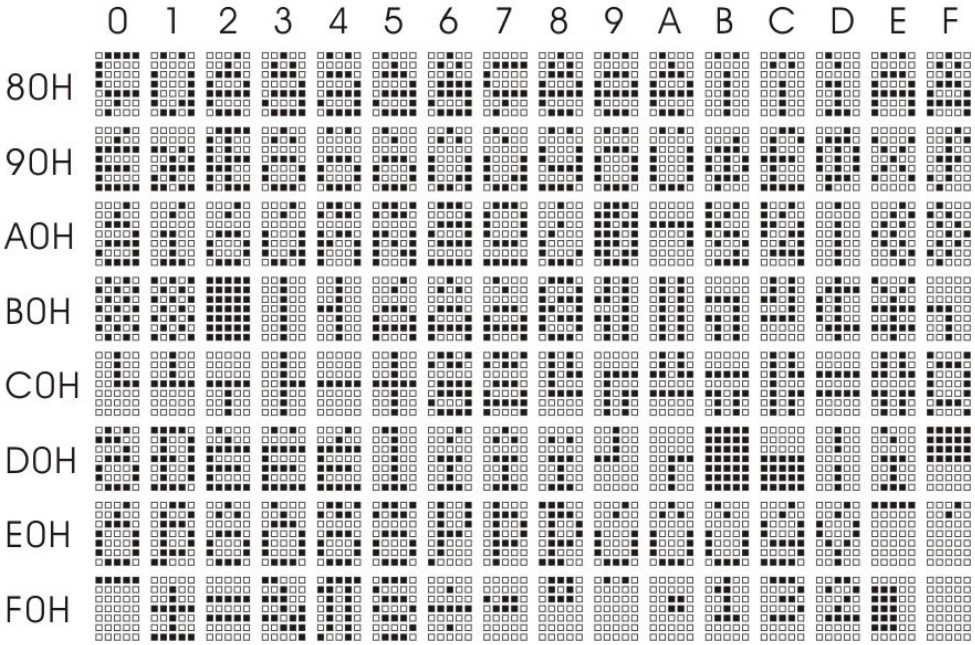

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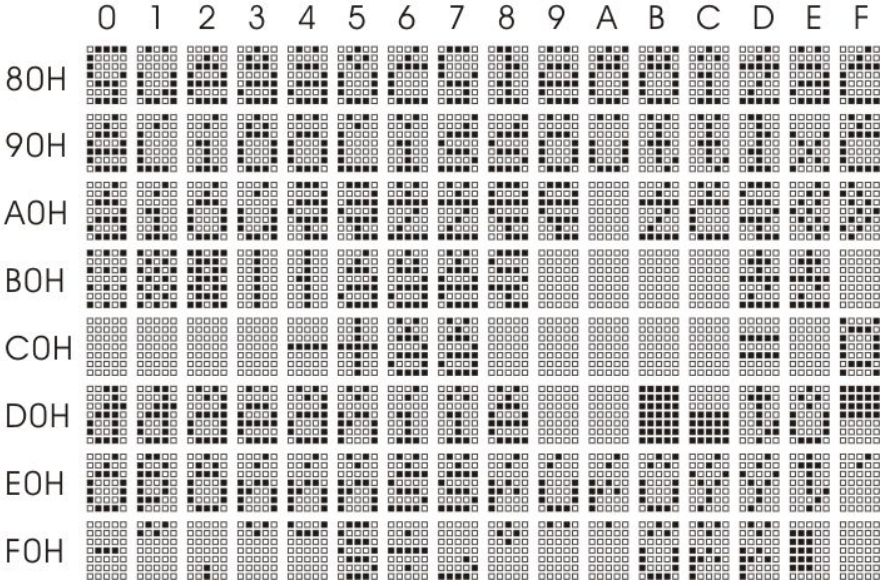

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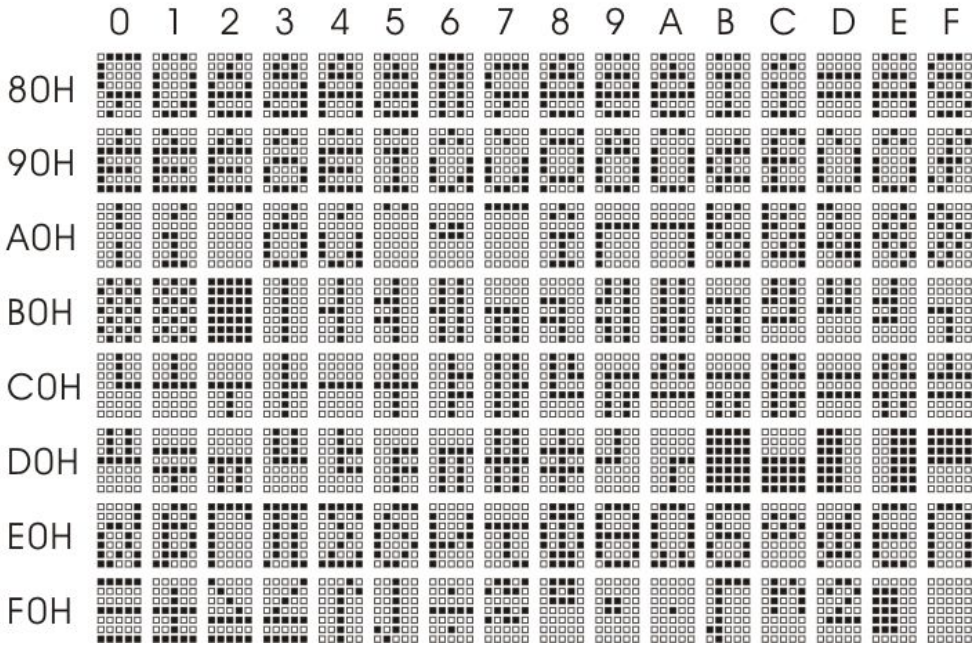

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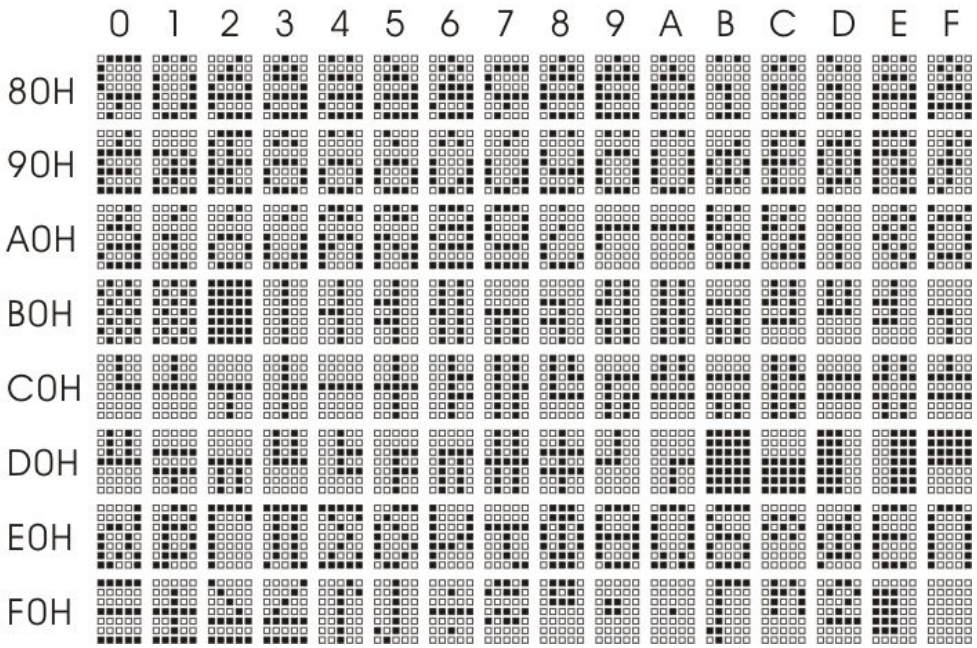

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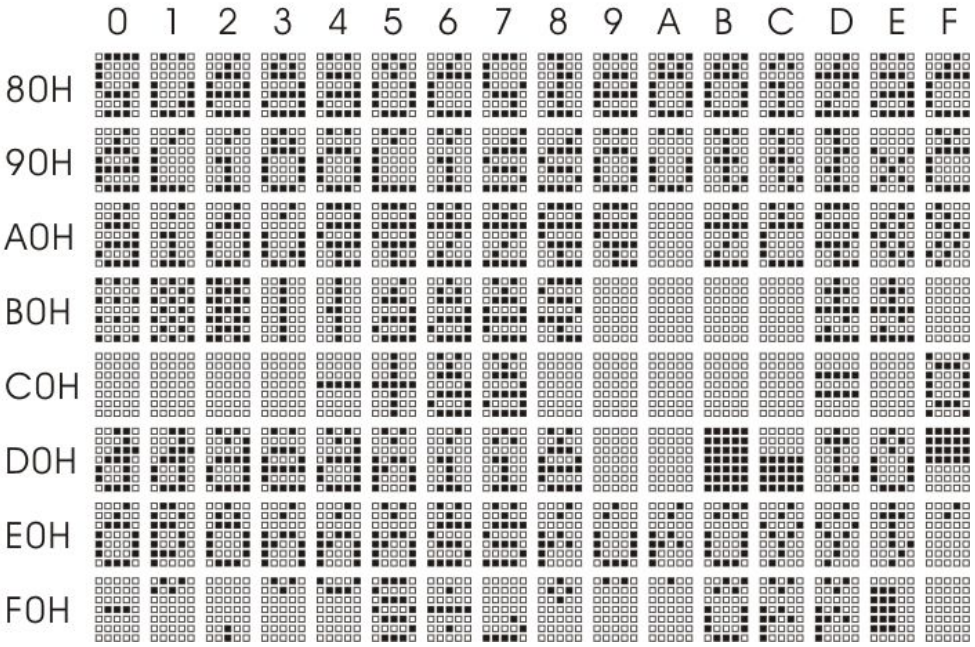

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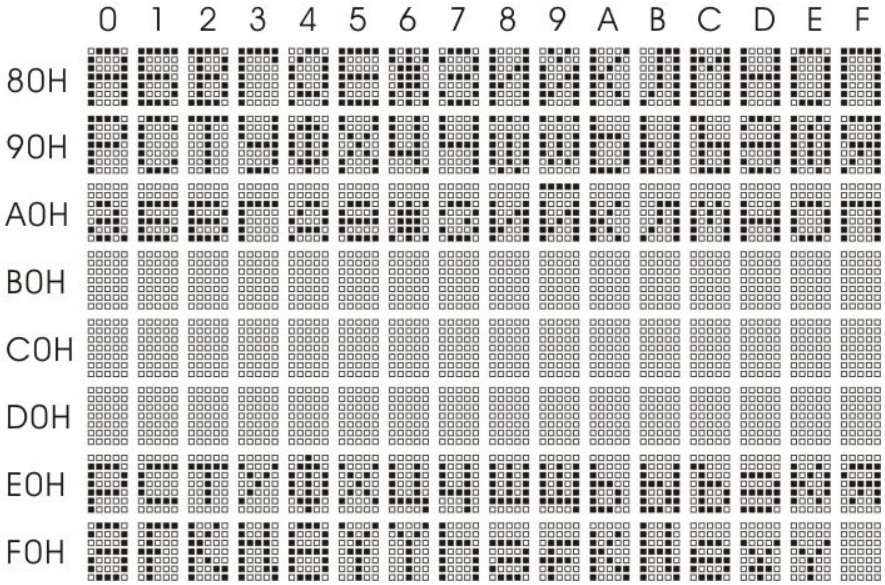
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