

**CD7220/CD3220**  
**VACUUM FLUORESCENT**  
**CUSTOMER DISPLAY**  
**MANUAL**

# CD7220/CD3220 CUSTOMER DISPLAY

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# CD7220/CD3220 CUSTOMER DISPLAY

## INTRODUCTION

Thank you for choosing the CD-7220/CD-3220 VFD Customer Pole Display. The CD-7220/CD-3220 provides both reliability and performance in a professional looking design. In this guide, you will find connection and configuration information to help you connect the display to your computer. If you are a programmer, you will find interface command details to allow you to exploit the advanced features of the display.

The CD-7220/CD-3220 customer pole display uses a vacuum fluorescent display (VFD) tube presenting bright and easy to read characters. Because of the VFD technology the display is viewable from a wide angle. Users will appreciate not having to remain in a fixed viewing position to see the display, they will be free to move forward in line and still keep the display readable. The CD-7220/CD-3220 customer pole display has 2 pole sections giving you the choice of 4 different display heights. The display can be rotated up to 270°. The head of the display can tilt by up to 35°. The combination of these features gives you flexibility to tailor the display position to your unique application.

**Data can be displayed on single side (CD-7220) or two sides (CD-7220D) of the display.** You can choose to show same or different message on the double-sided display. With 2 lines of 20 characters on each side CD-7220 can display alphanumeric messages with 13 international characters. Additionally, software utility is provided to transfer character dot pattern to ASCII code giving you the ability to defined characters and demo message to download to the display EEPROM.

The CD7220/CD3220 customer pole display uses an easy to connect RS-232C serial port connection with a wide range of available communication speeds from 300 to 38,400bps. CD7220's pass through function allows you to connect another serial device by sharing one single serial port on computer. CD-7220/CD3220 also offers a variety of emulation modes including CD-5220II, Epson, ADM787, ADM788, Aedes, Emax and Ultimate. The CD-7220's universal design gives you the flexibility to choose the application software best suited for your POS requirement.

# CD7220/CD3220 CUSTOMER DISPLAY

## 1. FEATURES

- 20 columns x 2 lines for each side (7220/3220 single sided, 7220D double sided.)
- Double-sided display (7220D) can have different data on each side.
- Display panel is adjustable both by tilting vertically and rotating horizontally.
- Configuration of baud rate, command emulation mode, and user defined font is selectable by window based support software or by using external setting box.
- Command emulation modes include CD5220II, Epson, ADM787, ADM788, Aedex, Emax and Ultimate.
- Support software has facility for designing user-defined characters and downloading setup parameters to the display. Once in the display new characters are stored in non-volatile EEPROM.
- Reverse characters (black characters on blue green background) can be specified using the Epson command set.
- Display windowing commands are available using CD5220 or Epson command sets.
- Uses RS-232 serial interface with communication speeds from 300 to 38400 BPS.
- Display pass through function allows printer and display to share one port.

# CD7220/CD3220 CUSTOMER DISPLAY

## 2. ORDER INFORMATION

|  | <b>CD-XXXX</b> | <b>D</b> | <b>S</b> | <b>T</b> | <b>12</b> | <b>110</b> | <b>PT</b> |   |
|--|----------------|----------|----------|----------|-----------|------------|-----------|---|
| <b>Model No.</b>                               |                |          |          |          |           |            |           | <b>Pass through function</b>                                |
| CD-7220  |                |          |          |          |           |            |           | PT: with pass through cable                                 |
| CD-3220  |                |          |          |          |           |            |           | Blank: without pass through cable                           |
| <b>Face</b>                                    |                |          |          |          |           |            |           | <b>Power Adapter</b>  |
| D: Double sided                                |                |          |          |          |           |            |           | N: without power adapter                                    |
| Blank: Single sided                            |                |          |          |          |           |            |           | 110: 110V AC power adapter                                  |
|  |                |          |          |          |           |            |           | EU: 230V AC power adapter<br>with EU power cord             |
|  |                |          |          |          |           |            |           | UK: 230V AC power adapter<br>with UK power cord             |
|  |                |          |          |          |           |            |           | B: power bracket kit for connection<br>with PC power supply |
| <b>Interface</b>                               |                |          |          |          |           |            |           | <b>Power Input</b>  |
| S: Serial                                      |                |          |          |          |           |            |           | 05: 5V DC   |
| U: USB   |                |          |          |          |           |            |           | 12: 12V DC  |
|  |                |          |          |          |           |            |           | 24: 24V DC  |
| <b>Base</b>                                    |                |          |          |          |           |            |           |   |
| T: PTC rectangular free                        |                |          |          |          |           |            |           |   |
| C: space-saving round base<br>with metal plate |                |          |          |          |           |            |           |   |

Table 1-1

## CD7220/CD3220 CUSTOMER DISPLAY

### 3. GENERAL SPECIFICATIONS

| ITEM                    | CD7220D  | CD7220                                |               |
|-------------------------|--|---------------------------------------|---------------|
| <b>Display method</b>   | Vacuum fluorescent display   |                                       |               |
| Display color           | Blue green   |                                       |               |
| Number of characters    | 80 characters ( 20 columns x 2 lines with double side )                                    | 40 characters ( 20 columns x 2 lines) |               |
| Brightness              | 700 cd/m <sup>2</sup>  |                                       |               |
| Character type          | 96 alphanumeric<br>13 kinds of international character set and 1 user-define character set |                                       |               |
| Character font          | 5 x 7 dot matrix, comma, decimal point   |                                       |               |
| Character size          | 9.2mm x 5.25mm   |                                       |               |
| Character pitch         | 8.3mm  |                                       |               |
| Power supply            | 5VDC or 12VDC or 24VDC or 33VDC  |                                       |               |
| Power consumption       | 8W   | 4.5W                                  |               |
| MTBF(power on time)     | 25000 hours  |                                       |               |
| Dimensions              | 230(W)x100(H)x42(D)mm  |                                       |               |
| Viewing angle           | ± 30 degrees   |                                       |               |
| Rotation angle          | Maximum 270 degrees  |                                       |               |
| Weight                  | 0.9 Kg   |                                       |               |
| Environmental Condition | <b>Operating</b>   | Temperature                           | 5 - 45        |
|                         |  | Humidity                              | Less than 95% |
|                         | Storage  | <b>Temperature</b>                    | -5 - 55       |
|                         |  | Humidity                              | Less than 95% |
| Safety                  | FCC class B 、 CE   |                                       |               |

Table 1-2

## CD7220/CD3220 CUSTOMER DISPLAY

| ITEM                        | CD3220   |             |               |
|-----------------------------|--|-------------|---------------|
| <b>Display method</b>       | Vacuum fluorescent display   |             |               |
| Display color               | Blue green   |             |               |
| Number of characters        | 40 characters(20 columns × 2lines)   |             |               |
| Brightness                  | 700 cd/m2  |             |               |
| Character type              | 96 alphanumeric<br>13 kinds of international character set and 1 user-define set |             |               |
| Character font              | 5 × 7dot matrix  |             |               |
| Character size              | 3.5mm×5.0mm  |             |               |
| Character pitch             | 2mm  |             |               |
| Power supply                | 5VDC or 12VDC or 24VDC   |             |               |
| Power consumption           | 5W   |             |               |
| MTBF(power on time)         | 25000hours   |             |               |
| Dimensions                  | 170(W)×70(H)×45(D)mm   |             |               |
| Viewing angle               | ± 30 degrees   |             |               |
| Rotation angle              | Maximum 270 degrees  |             |               |
| Weight                      | 0.9Kg  |             |               |
| Environmental<br>Conditions | Operating  | Temperature | 5-45          |
|                             |  | Humidity    | Less then 95% |
|                             | Storage  | Temperature | -5-55         |
|                             |  | Humidity    | Less then 95% |
| Safety                      | FCC class B 、 CE   |             |               |

# CD7220/CD3220 CUSTOMER DISPLAY

## 4. INTERFACE SPECIFICATIONS

### 4.1 Serial port (RS232C)

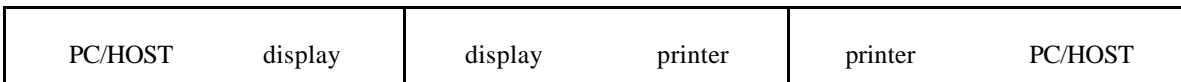
#### 4.1.1 Serial port (RS232C) communication

- (a) This interface specification is based on EIA RS232C baud rate 300 to 38400 BPS,  
8 data bits, none parity, 1 or more stop bits
- (b) Serial port (RS232C) communication data link

*Data link flow chart:*



*Control for RTS and DTR :*



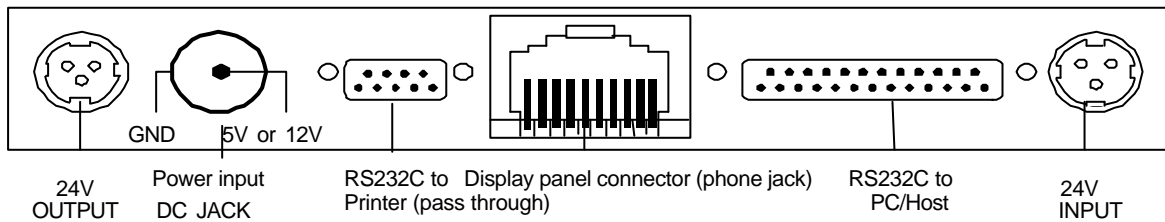
- (c) CD7220 will activate DTR or RTS signal to PC/host in the following two conditions:

1. Printer will activate DTR or RTS signal.
2. The pass through buffer in CD7220/CD3220 is full ( 200 bytes ) .

\* If PC/host keep transmitting the data to printer when CD7220/CD3220 activate DTR or RTS, the data will be lost.

#### 4.1.2 Serial port interface for rectangle basic section

- (a) Serial port interface connector position for rectangle basic section



- (b) Power input

Connector type: DC JACK (5.5/2.1)

Hoshiden connector for 24VDC

## CD7220/CD3220 CUSTOMER DISPLAY

(c) RS232C to PC/HOST connector: D-sub 25 pin female pin assignment

| Pin No. | Signal | Direction                    | Function description         |
|---------|--------|------------------------------|------------------------------|
| 1       | FG     |                              | Frame ground                 |
| 2       | TXD    | From printer to PC/Host      | Printer status data          |
| 3       | RXD    | Input                        | Receive data                 |
| 4       | RTS    | Output                       | Display/printer ready signal |
| 5       | CTS    | From PC/HOST to printer Host | Ready signal                 |
| 6       | DSR    | From PC/HOST to printer      | Host ready signal            |
| 7       | GND    |                              | Signal ground                |
| 16      | V+     | Input                        | If using power built-in      |
| 20      | DTR    | Output                       | Display/printer ready signal |

Table 4-1

(d) RS232C to printer connector: D-sub 9 pin male pin assignment

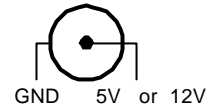
| Pin No. | Signal | Input / Output direction | Function description |
|---------|--------|--------------------------|----------------------|
| 2       | RXD    | From printer to PC/Host  | Printer status data  |
| 3       | TXD    | Output                   | Transmit data        |
| 4       | DTR    | From PC/HOST to printer  | Host ready signal    |
| 5       | GND    |                          | Signal ground        |
| 6       | DSR    | Input                    | Printer ready signal |
| 7       | RTS    | From PC/HOST to printer  | Host ready signal    |
| 8       | CTS    | Input                    | Printer ready signal |

Table 4-2

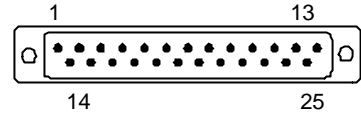
# CD7220/CD3220 CUSTOMER DISPLAY

## 4.1.3 Serial port interface to the space-saving base portion

(a) Power cable connector: DC jack (5.5/2.1)



(b) RS232C interface pass through cable connector: D-sub 25 pin female pin assignment

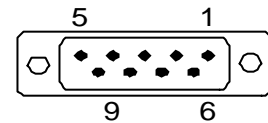


| Pin No. | Signal | Input / Output direction | Function description |
|---------|--------|--------------------------|----------------------|
| 2       | RXD    | From printer to PC/Host  | Printer status data  |
| 3       | TXD    | Output                   | Transmit data        |
| 4       | CTS    | Input                    | Printer ready signal |
| 5       | RTS    | From PC/HOST to printer  | Host ready signal    |
| 6       | DTR    | From PC/HOST to printer  | Host ready signal    |
| 7       | GND    |                          | Signal ground        |
| 20      | DSR    | Input                    | Printer ready signal |

Table 4-3

(c) RS232C interface to PC/HOST cable, PC/HOST side connector pin assignment

Connector type: D-sub 9 pin (Male)



| Pin No. | Signal | Direction               | Function description         |
|---------|--------|-------------------------|------------------------------|
| 2       | TXD    | From printer to PC/Host | Printer status data          |
| 3       | RXD    | Input                   | Receive data                 |
| 4       | DSR    | From PC/HOST to printer | Host ready signal            |
| 5       | GND    |                         | Signal ground                |
| 6       | DTR    | Output                  | Display/printer ready signal |
| 7       | RTS    | Output                  | Display/printer ready signal |
| 8       | CTS    | From PC/HOST to printer | Host ready signal            |

Table 4-4

# CD7220/CD3220 CUSTOMER DISPLAY

## 5. SYSTEM COMMAND DETAILS

### 5.1 Baud rate

**STX 05 B n ETX** /Set baud rate and keep it with EEPROM/  
 ASCII Format STX 05 B n ETX  
 Dec. Format [02][05][66] n [03]  
 Hex. Format [02h][05h] [42h] n [03h] 30h ≤ n ≤ 37h  
 Description Change the display communication baud rate. The baud rate setting can be selected from 300 to 38400. The setting function will be saved to EEPROM.

| N   | Baud rate |
|-----|-----------|
| 30h | 9600      |
| 31h | 4800      |
| 32h | 2400      |
| 33h | 1200      |
| 34h | 600       |
| 35h | 300       |
| 36h | 38400     |
| 37h | 19200     |

### 5.2 International character set

**STX 05 S n ETX** Change international character set  
 ASCII Format STX 05 S n ETX  
 Dec. Format [02][05][83] n [03]  
 Hex. Format [02h][05h] [53h] n [03h] 30h ≤ n ≤ 3fh  
 Description Change the display international character font. A total of 16 different character fonts to select from. The setting function will be saved to EEPROM.

| n   | International font | n   | International font  |
|-----|--------------------|-----|---------------------|
| 30h | U.S.A              | 38h | JAPAN               |
| 31h | FRANCE             | 39h | NORWAY              |
| 32h | GERMANY            | 3Ah | DENMARK II          |
| 33h | U.K                | 3Bh | SLAVONIC            |
| 34h | DENMARK I          | 3Ch | RUSSIA              |
| 35h | SWEDEN             | 3Dh | Factory define      |
| 36h | ITALY              | 3Eh | Factory define      |
| 37h | SPAIN              | 3Fh | User define pattern |

### 5.3 Command type select

**STX 05 C n ETX** Change command type  
 ASCII Format STX 05 C n ETX  
 Dec. Format [02][05][67] n [03]  
 Hex. Format [02h][05h] [43h] n [03h] 30h n 37h  
 Description This command will change the command type and initialize the display. The display emulation mode is based on CD5220II/ESC POS/ADM787/ADM788/ UTC/AEDEX/EMAX mode. The setting function will be saved to EEPROM.

| n   | Command type | n   | Command type |
|-----|--------------|-----|--------------|
| 30h | DSP800       | 34h | AEDEX        |
| 31h | ESC/POS      | 35h | UTC/P        |
| 32h | ADM788       | 36h | UTC/S        |
| 33h | ADM787       | 37h | CD5220       |

# CD7220/CD3220 CUSTOMER DISPLAY

## 5.4 Reset EEPROM

**STX 05 07 n ETX**      Reset EEPROM  
 ASCII Format            STX 05 07 n ETX  
 Dec. Format            [02][05][07][n][03]  
 Hex. Format            [02h][05h][07h][n][03h]  
 Description            This command will reset the content of EEPROM (eg. demo scroll data, user-define character, baud rate setting.)  
                           n=31h    clear all EEPROM contents  
                           n=32h    clear upper line data message  
                           n=33h    clear lower line data message

## 5.5 Save data for demo display

**STX 05 L n m ETX**      Save demo message to EEPROM  
 ASCII Format            STX 05 L n m ETX  
 Dec. Format            [02][05][76] n m [03]  
 Hex. Format            [02h][05h][4Ch] n m [03h]  
 Description            Save demo message for upper line and bottom line  
                           n = 31h save data message for upper line  
                           n = 32h save data message for lower line  
                           m = data message; the maximum data character is under 200

## 5.6 Run Demo message

**STX 05 D 08 ETX**      Run demo message  
 ASCII Format            STX 05 D 08 ETX  
 Dec. Format            [02][05][68][08][03]  
 Hex. Format            [02h][05h][44h][08][03h]  
 Description            Run demo message for the display

## 5.7 Set Communication Option

**STX 05 P n ETX**      Set the communication parity  
 ASCII Format            STX 05 P n ETX  
 Dec. Format            [02][05][80] n [03]  
 Hex. Format            [02h][05h][50h] n [03h] 31h ≤ n ≤ 36h  
 Description            Change the display communication parity. Set 7 or 8 data bit and the parity set for even, odd, or non-parity.

| n   | Parity |
|-----|--------|
| 31h | N-8-1  |
| 32h | N-7-1  |
| 33h | E-8-1  |
| 34h | E-7-1  |
| 35h | O-8-1  |
| 36h | O-7-1  |

# CD7220/CD3220 CUSTOMER DISPLAY

## 6. COMMAND

### 6.1 Command list

#### 6.1.1 CD 5220-II STANDARD MODE

| Command                             | Code description (hex)  | Function description   |
|-------------------------------------|---|--|
| ESC DC1                             | 1B 11   | overwrite mode   |
| ESC DC2                             | 1B 12   | vertical scroll mode   |
| ESC DC3                             | 1B 13   | horizontal scroll mode   |
| ESC Q A .....CR                     | 1B 51 41 [n ]x20 0D   | set the string display mode, write string to upper line  |
| ESC Q B .....CR                     | 1B 51 42 [n ]x20 0D   | set the string display mode, write string to lower line  |
| ESC Q D .....CR                     | 1B 51 44 [n ]x20 0D   | upper line message scroll continuously   |
| ESC [ D                             | 1B 5B 44  | move cursor left   |
| BS                                  | 08  | move cursor left   |
| ESC [ C                             | 1B 5B 43  | move cursor right  |
| HT                                  | 09  | move cursor right  |
| ESC [ A                             | 1B 5B 41  | move cursor up   |
| ESC [ B                             | 1B 5B 42  | move cursor down   |
| LF                                  | 0A  | move cursor down   |
| ESC [ H                             | 1B 5B 48  | move cursor to home position   |
| HOM                                 | 0B  | move cursor to home position   |
| ESC [ L                             | 1B 5B 4C  | move cursor to left-most position  |
| CR                                  | 0D  | move cursor to left-most position  |
| ESC [ R                             | 1B 5B 52  | move cursor to right-most position   |
| ESC [ K                             | 1B 5B 4B  | move cursor to bottom position   |
| ESC l x y                           | 1B 6C x y<br>1≤x≤20,y=1,2   | move cursor to specified position  |
| ESC @                               | 1B 40   | initialize display   |
| ESC W s x1 x2 y                     | 1B 57 1 x1 x2 y    1≤x1≤x2≤20<br>y=1,2  | reset window range at horizontal scroll mode   |
| CLR                                 | 0C  | clear display screen, and clear string mode  |
| CAN                                 | 18  | clear cursor line, and clear string mode   |
| ESC * n                             | 1B 2A n                    1≤n≤4  | brightness adjustment  |
| ESC & s n m [a(p1..pa)]x<br>(m-n+!) | 1B 26 1 n m [a(p1..pa)]x (m-n+1)<br>20h<n<=m<=FFh<br>a=1-5 , p1..p5 =row1..row5   | define download characters.  |
| ESC ?                               | 1B 3F   | delete download characters.  |
| ESC %                               | 1B 25   | select/cancel download character set.  |
| ESC _ n                             | 1B 5F n                    n=0,1  | set cursor ON/OFF  |
| ESC f n                             | 1B 66 n   | select international fonts   |
| ESC c n                             | 1B 63 n   | select fonts, ASCII code or JIS code   |
| ESC s l                             | 1B 73 01  | store user-define character into EEPROM  |
| ESC d l                             | 1B 64 01  | restore user-define character from EEPROM  |
| ESC = n                             | 1B 3D n<br>n=1; enable printer, disable display<br>n=2; disable printer, enable display<br>n=3; enable printer, enable display<br>n=4; message for customer side<br>(for CD7220D only)<br>n=5; message for operator side<br>(for CD7220D only)<br>default n=2 | select peripheral device, display or printer: display for customer side or display for operator side |

Table 6-1

**(REMARK)**

- \* While using command "ESC QA" or "ESC QB", these two commands can be used with terminal printer: TP2688 or TP3688
- \* While using command "ESC QA" or "ESC QB", other commands can not be used except when using command "CLR" or "CAN" to change operating mode.
- \* When using command "ESC QD", the upper line message will scroll continuously until a new command is received, it will then clear the upper line and move the cursor to the upper left-end position.

# CD7220/CD3220 CUSTOMER DISPLAY

Set international font for CD7220/CD3220 (Table 6-2)

| n | International font set | n | International font set |
|---|------------------------|---|------------------------|
| A | U.S.A.                 | N | NORWAY                 |
| G | GERMANY                | W | SWEDEN                 |
| I | ITALY                  | D | DENMARK I              |
| J | JAPAN                  | E | DENMARK II             |
| U | U.K.                   | L | SLAVONIC               |
| F | FRANCE                 | R | RUSSIA                 |
| S | SPAIN                  |   | reserved               |

Select code for CD7220/CD3220 (Table 6-3)

| n | International code set        |
|---|-------------------------------|
| A | Compliance with ASCII code    |
| J | Compliance with JIS code      |
| R | Compliance with RUSSIA code   |
| L | Compliance with SLAVONIC code |
| P | PC858                         |
| W | WPC1252                       |

## 6.1.2 ADM787/788 command list

| Command | Code description (hex) | Function description  |
|---------|------------------------|---|
| CLR     | 0C                     | clear display   |
| CR      | 0D                     | carriage return   |
| SLE1    | 0E                     | clear upper line and move cursor to upper left-end position     |
| SLE2    | 0F                     | clear bottom line and move cursor to bottom left-end position   |
| DC0     | 10 n                   | set period to upper line, last n position $31h \leq n \leq 37h$ |
| DC1     | 11 n                   | set line blinking, upper line n=' 1', bottom line n=' 2'        |
| DC2     | 12 n                   | clear line blinking, upper line n=' 1', bottom line n=' 2'      |
| SF1     | 1E                     | clear field 1 and move cursor to field 1, first position        |
| SF2     | 1F                     | clear field 2 and move cursor to field 2, first position        |

Table 6-4

## 6.1.3 UTC standard mode command list

| Command | Code description (hex) | Function description        |
|---------|------------------------|-----------------------------|
| BS      | 08                     | back space                  |
| HT      | 09                     | horizontal tab              |
| LF      | 0A                     | line feed                   |
| CR      | 0D                     | carriage return             |
| DLE     | 0F                     | display position            |
| DC1     | 11                     | overwrite display mode      |
| DC2     | 12                     | vertical scroll mode        |
| DC3     | 13                     | cursor on                   |
| DC4     | 14                     | cursor off                  |
| ESC d   | 1B 64                  | change to UTC enhanced mode |
| US      | 1F                     | clear display               |

Table 6-5

## 6.1.4 UTC enhanced mode command list

| Command        | Code description (hex)                  | Function description                   |
|----------------|---|--|
| ESC u A ....CR | 1B 75 41 [ data x 40] 0D                | upper line display                     |
| ESC u B ....CR | 1B 75 42 [ data x 40] 0D                | bottom line display                    |
| ESC u D ....CR | 1B 75 44 [ data x 40] 0D                | upper line message scroll continuously |
| ESC u E ....CR | 1B 75 45 hh ':' mm 0D<br>h,m=' 0' -' 9' | display time                           |
| ESC u F ....CR | 1B 75 46 [ data x 40] 0D                | upper line message scroll once         |
| ESC u H ....CR | 1B 75 48 n m 0D $20h \leq n, m$         | change attention code                  |
| ESC u I ....CR | 1B 75 49 [ data x 40] 0D                | two line display                       |
| ESC RS CR      | 1B 0F 0D                                | change to UTC standard mode            |

Table 6-6

# CD7220/CD3220 CUSTOMER DISPLAY

## 6.1.5 AEDEX mode command list

| Command     | Code description (hex)                     | Function description                   |
|-------------|--|--|
| ! # 1 ...CR | 21 23 31 [data x 40]                       | upper line display                     |
| ! # 2 ...CR | 21 23 32 [data x 40]                       | bottom line display                    |
| ! # 4 ...CR | 21 23 34 [data x 40]                       | upper line message scroll continuously |
| ! # 5 ...CR | 21 23 35 hh ' : ' mm 0D<br>h,m=' 0' - ' 9' | display time                           |
| ! # 6 ...CR | 21 23 36 [data x 40]                       | upper line message scroll once pass    |
| ! # 8 ...CR | 21 23 38 n m 0D 20h≤n,m                    | change attention code                  |
| ! # 9 ...CR | 21 23 39 [data x 40]                       | two line display                       |

Table 6-7

## 6.1.6 DSP-800 mode command list

| Command               | Code description (hex)                 | Function descriptions  |
|-----------------------|--|--|
| EOT SOH I n ETB       | 04 01 49 n 17                          | select international character set   |
| EOT SOH P n ETB       | 04 01 50 n 17 n=31h-58h                | move cursor to specified position  |
| EOT SOH C n m ETB     | 04 01 43 n m 17<br>31h≤n≤m≤58h         | clear display range from <u>n</u> position to <u>m</u> position and move cursor to <u>n</u> position |
| EOT SOH S n ETB       | 04 01 53 n 17 n=31h-35h                | save current view message to n layer for demo view data  |
| EOT SOH D n m ETB     | 04 01 44 n m 17<br>n=31h-4Fh m=31h-33h | display the saved demo message   |
| EOT SOH A n ETB       | 04 01 41 n 17 n=31h-34h                | brightness adjustment  |
| EOT SOH F n ETB       | 04 01 46 n 17 00h≤n≤FFh                | blink display screen   |
| EOT SOH & n [px5] ETB | 04 01 26 n p1...p5 17, 20h≤n           | define download characters   |
| EOT SOH ? n ETB       | 04 01 3F n 17 20h≤n                    | delete download characters   |
| EOT SOH = n ETB       | 04 01 3D n 17                          | select peripheral device<br>select printer n=' 1', display n=' 2'                                    |
| EOT SOH % ETB         | 04 01 25 17                            | initialize display   |
| EOT SOH @ ETB         | 04 01 40 17                            | execute self-test  |
| EOT SOH B n N ETB     | 04 01 42 n 4E 17 n=31h-36h             | set baud rate and parity   |

Table 6-8

**(REMARK)**

\* International font set (Table 6-9)

| n   | International font set |
|-----|------------------------|
| 30h | U.S.A.                 |
| 31h | France                 |
| 32h | Germany                |
| 33h | U.K.                   |
| 34h | Denmark I              |
| 35h | Sweden                 |
| 36h | Italy                  |
| 37h | Spain                  |
| 38h | Japan                  |
| 39h | Norway                 |
| 3Ah | Denmark II             |

# CD7220/CD3220 CUSTOMER DISPLAY

## 6.1.7 EPSON ESC/POS command list

| Command                         | Code description(hex)   | Function description                         |
|---------------------------------|---|--|
| HT                              | 09  | move cursor right                            |
| BS                              | 08  | move cursor left                             |
| US LF                           | 1F 0A   | move cursor up                               |
| LF                              | 0A  | move cursor down                             |
| US CR                           | 1F 0D   | move cursor to right-end position            |
| CR                              | 0D  | move cursor to left-end position             |
| HOM                             | 0B  | move cursor to home position                 |
| US B                            | 1F 42   | move cursor to bottom position               |
| US \$ x y                       | 1F 24 x y $k \leq x \leq 20, y=1,2$   | move cursor to specified position            |
| CLR                             | 0C  | clear display screen                         |
| CAN                             | 18  | clear cursor line                            |
| US X n                          | 1F 58 n $k \leq n \leq 4$   | brightness adjustment                        |
| US E n                          | 1F 45 n $0 \leq n \leq 255$   | blink display screen                         |
| ESC @                           | 1B 40   | initialize display                           |
| ESC t n                         | 1B 74 n $k \leq n \leq 15$  | select character code table                  |
| ESC R n                         | 1B 52 n $k \leq n \leq 15$  | select international character set           |
| US r n                          | 1F 72 n $n=0,1$   | select/cancel reverse character              |
| US MD1                          | 1F 01   | specify overwrite mode                       |
| US MD2                          | 1F 02   | specify vertical scroll mode                 |
| US MD3                          | 1F 03   | specify horizontal scroll mode               |
| ESC & s n m<br>[a(p1..pa)]x m-n | 1B 26 1 n m [a(p1..pa)]x m-n<br>20h<n<m<FFh; a=1-5, p1..p5=row1..row5   | define download characters                   |
| ESC ?                           | 1B 3F   | delete download characters                   |
| ESC %                           | 1B 25   | select/cancel download character set         |
| ESC W n s x1 y1<br>x2 y2        | 1B 57 n s x1 y1 x2 y2<br>$n=1-4, s=0,1, 1 \leq x1 \leq x2 \leq 20; 1 \leq y1 \leq y2 \leq 2$  | reset window range                           |
| ESC = n                         | 1B 3D n (default n=2)<br>n=1; enable printer, disable display<br>n=2; disable printer, enable display<br>n=3; enable printer, enable display<br>For CD7220D only:<br>n=4; message for customer side<br>n=5; message for operator side | select peripheral device                     |
| US :                            | 1F 3A   | set starting/ending position to define macro |
| US ^ n m                        | 1F 5E n m, $(k(n, m) \leq 255$  | execute and quit macro                       |
| US @                            | 1F 40   | execute self-test                            |
| ESC s l                         | 1F 73 01  | store defined download character to EEPROM   |
| ESC d l                         | 1F 64 01  | restore user-define character from EEPROM    |
| ESC T h m                       | 1B 54 h m, $0 \leq h \leq 23 0 \leq m \leq 59$  | display time                                 |
| US . n                          | 1F 2E n, n = a displayable character code   | specify period                               |
| US , n                          | 1F 2C n, n = a displayable character code   | specify comma                                |
| US ; n                          | 1F 3B n, n = a displayable character code   | specify semicolon (period + comma )          |
| US # n m                        | 1F23 n m, n= 0 or 1, $0 \leq m \leq 20$   | turn annunciator ON/OFF                      |

Table 6-10

Set international font for ESC/POS (Table 6-11)

| n | International font set | n  | International font set |
|---|------------------------|----|------------------------|
| 0 | U.S.A.                 | 7  | SPAIN                  |
| 1 | FRANCE                 | 8  | JAPAN                  |
| 2 | GERMANY                | 9  | NORWAY                 |
| 3 | U.K.                   | 10 | DENMARK II             |
| 4 | DENMARK I              | 11 | SLAVONIC               |
| 5 | SWEDEN                 | 12 | RUSSIA                 |
| 6 | ITALY                  | 15 | Reserved               |

Select code for ESC/POS (Table 6-12)

| n  | International font set (80H-FFH)      |
|----|---------------------------------------|
| 0  | Page 0,(PC437:U.S.A.,standard Europe) |
| 1  | Page 1,(Katakana for Japan )          |
| 2  | Page 2,(PC850:multilingual)           |
| 3  | Page 3,(PC860:Portuguese)             |
| 4  | Page 4,(PC863:Canadian-French)        |
| 5  | Page 5,(PC865:Nordic)                 |
| 6  | Page 6,(SLAVONIC)                     |
| 7  | Page 7,(RUSSLA)                       |
| 19 | Page 8,(PC858:Euro)                   |
| 16 | Page 9,(WPC1252)                      |

# CD7220/CD3220 CUSTOMER DISPLAY

## 6.2 CD7220/CD3220 standard command details

|                                       |   |
|---------------------------------------|---|
| <b>ESC DC1</b>                        | /Overwrite mode/  |
| ASCII Format                          | ESC DC1   |
| Dec. Format                           | [027][017]  |
| Hex. Format                           | [1Bh][11h]  |
| Description                           | Change the display mode to the overwrite mode. In this mode, the cursor will move rightward and begin from the upper left-end position. When the cursor reached the end of the upper line, the cursor will move down to the bottom left-end position to continue. When the cursor reached the end of the bottom line, it will move up to the upper left-end position and overwrite the previous characters.   |
| <b>ESC DC2</b>                        | /Vertical scroll mode/  |
| ASCII Format                          | ESC DC2   |
| Dec. Format                           | [027][018]  |
| Hex. Format                           | [1Bh][12h]  |
| Description                           | Change the display mode to the vertical scroll mode. In this mode, the cursor will move rightward. The cursor will begin from the upper left-end position until it reached the end of the upper line, the cursor will then move down to the bottom left-end position to continue until it reached the end of the bottom line. Then, CD7220/CD3220 will scroll the bottom line up to replace the upper line. The bottom line will be cleared, and the cursor will continue to the first position of the bottom line. |
| <b>ESC DC3</b>                        | /Horizontal scroll mode/  |
| ASCII Format                          | ESC DC3   |
| Dec. Format                           | [027][019]  |
| Hex. Format                           | [1Bh][13h]  |
| Description                           | Change the display mode to the horizontal mode. In this mode, the extend of the cursor activity is bond by predefined range, limited to the upper line. (Please refer to Set or cancel window command), where the default window is the whole upper line. Once the cursor activity reached the end of the range, the characters that comes there after will push displayed characters forward from behind.  |
| <b>ESC Q A d1d2d3d4d5d6.....dn CR</b> |   |
| <b>ESC Q B d1d2d3d4d5d6.....dn CR</b> | /Set the string display mode, and write string to display/  |
| ASCII Format                          | ESC Q A d1d2d3d4d5d6...dn CR<br>ESC Q B d1d2d3d4d5d6...dn CR  |
| Dec. Format                           | [027][081][065] d1d2d3..dn [013]<br>[027][081][066] d1d2d3..dn [013]  |
| Hex. Format                           | [1Bh][51h][41h] d1d2d3..dn [0Dh]<br>[1Bh][51H][42h] d1d2d3..dn [0Dh] {20h≤dn≤ffh}   |
| Description                           | Set the string display mode, write to upper or lower line d1 d2 d3 . . . dn {1≤n≤20}<br>“A” stands for the upper line, “B” stands for the lower line. The string display mode will be cancelled and back to last mode after receive CLR or CAN.   |
| <b>ESC Q D d1d2d3d4d5d6.....dn CR</b> | / Upper line message scroll continuously  |
| ASCII Format                          | ESC Q D d1d2d3d4d5d6...dn CR  |
| Dec. Format                           | [027][081][068] d1d2d3..dn [013]  |
| Hex. Format                           | [1Bh][51h][44h] d1d2d3..dn [0Dh] {20h≤dn≤ffh}   |
| Description                           | The message (previously defined) will scroll continuously in the horizontal direction until a new command is received.  |

# CD7220/CD3220 CUSTOMER DISPLAY

|                |   |
|----------------|---|
| <b>ESC [ D</b> | /Move cursor left/  |
| <b>BS</b>      | /Move cursor left/  |
| ASCII Format   | ESC [ D   |
| Dec. Format    | [027][091][068]   |
| Hex. Format    | [1Bh][5Bh][44h]   |
| ASCII Format   | BS  |
| Dec. Format    | [008]   |
| Hex. Format    | [08h]   |
| Description    | When the current cursor is at the left-end position, this command operates differently depends on the display mode. <ol style="list-style-type: none"><li>1. Overwrite mode: When the cursor reached the left-end of the lower line, it will continue to the right-end of the upper line, overwrite previous characters. When it reached the left end of the upper line, it will continue to the right-end of the lower line.</li><li>2. Vertical scroll mode: When the cursor reached the left-end of the lower line, the lower line will scroll up and replace the previous upper line, the lower line will be cleared and the cursor will continue to the right end of the lower line.</li><li>3. Horizontal scroll mode: The cursor will remain stationary.</li></ol> |
| <b>ESC [ C</b> | /Move cursor right/   |
| <b>HT</b>      | /Move cursor right/   |
| ASCII Format   | ESC [ C   |
| Dec. Format    | [027][091][067]   |
| Hex. Format    | [1Bh][5Bh][43h]   |
| ASCII Format   | HT  |
| Dec. Format    | [009]   |
| Hex. Format    | [09h]   |
| Description    | Move the cursor to the right. When the cursor reached the right-end, this command operates differently depending on the display mode. <ol style="list-style-type: none"><li>1. Overwrite mode: When the cursor reached the right-end of the lower line, it will continue to the left-end of the upper line, overwrite previous characters. When it reached the right-end of the upper line, it will continue to the right-end of the lower line.</li><li>2. Vertical scroll mode: When the cursor reached the right-end of the lower line, the lower line will scroll up to replace the upper line, the lower line is cleared and ready to continue characters there after.</li><li>3. Horizontal scroll mode: The cursor will remain stationary.</li></ol>               |
| <b>ESC [ A</b> | /Move cursor up/  |
| ASCII Format   | ESC [ A   |
| Dec. Format    | [027][091][065]   |
| Hex. Format    | [1Bh][5Bh][41h]   |
| Description    | Move the cursor up one line. When the cursor is on the upper line, this command operates differently depending on the display mode. <ol style="list-style-type: none"><li>1. Overwrite mode: The cursor is moved to the same column on the lower line.</li><li>2. Vertical scroll mode: The characters display on the upper line are scrolled to the lower line, and the upper line is cleared. The cursor will remain at the same position.</li><li>3. Horizontal scroll mode: The cursor will remain stationary.</li></ol>  |
| <b>ESC [ B</b> | /Move cursor down/  |
| <b>LF</b>      | /Move cursor down/  |
| ASCII Format   | ESC [ B   |
| Dec. Format    | [027][091][066]   |
| Hex. Format    | [1Bh][5Bh][42h]   |
| ASCII Format   | LF  |
| Dec. Format    | [010]   |
| Hex. Format    | [0Ah]   |
| Description    | Move the cursor down one line. When the cursor reached the lower line, this command operates differently depending on the display mode. <ol style="list-style-type: none"><li>1. Overwrite mode: The cursor is moved to the same column on the upper line.</li><li>2. Vertical scroll mode: The characters display on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor will remain at the same position.</li><li>3. Horizontal scroll mode: The cursor will remain stationary.</li></ol>  |

# CD7220/CD3220 CUSTOMER DISPLAY

|                       |  |
|-----------------------|--|
| <b>ESC [ H</b>        | /Move cursor to home position/   |
| <b>HOM</b>            | /Move cursor to home position/   |
| ASCII Format          | ESC [ H  |
| Dec. Format           | [027][091][072]  |
| Hex. Format           | [1Bh][5Bh][48h]  |
| ASCII Format          | HOM  |
| Dec. Format           | [011]  |
| Hex. Format           | [0Bh]  |
| Description           | The cursor will move to the left-end position of the upper line  |
| <b>ESC [ L</b>        | /Move cursor to left-most position/  |
| <b>CR</b>             | /Move cursor to left-most position/  |
| ASCII Format          | ESC [ L  |
| Dec. Format           | [027][091][076]  |
| Hex. Format           | [1Bh][5Bh][4Ch]  |
| ASCII Format          | CR   |
| Dec. Format           | [013]  |
| Hex. Format           | [0Dh]  |
| Description           | The cursor will be moved to the left-end position of the current line.   |
| <b>ESC [ R</b>        | /Move cursor to right-most position/   |
| ASCII Format          | ESC [ R  |
| Dec. Format           | [027][091][082]  |
| Hex. Format           | [1Bh][5Bh][52h]  |
| Description           | The cursor will be moved to the right-end position of the current line.  |
| <b>ESC [ K</b>        | /Move cursor to bottom position/   |
| ASCII Format          | ESC [ K  |
| Dec. Format           | [027][091][075]  |
| Hex. Format           | [1Bh][5Bh][4Bh]  |
| Description           | The cursor will be moved to the right-end position on the lower line.  |
| <b>ESC 1 x y</b>      | /Move cursor to specified position/  |
| ASCII Format          | ESC 1 x y  |
| Dec. Format           | [027][108] x y { $1 \leq x \leq 20, 1 \leq y \leq 2$ }   |
| Hex. Format           | [1Bh][6Ch][x][y]   |
| Description           | The cursor will be moved to the x column on the y line.  |
| <b>ESC @</b>          | /Initialize display/   |
| ASCII Format          | ESC @  |
| Dec. Format           | [027][064]   |
| Hex. Format           | [1Bh][40h]   |
| Description           | The data in the input buffer will be cleared and reset from default.   |
| <b>ESC W s x1x2 y</b> | /Reset the window/   |
| ASCII Format          | ESC W s x1 x2 y  |
| Dec. Format           | [027][087][000]  |
| Hex. Format           | [027][087][001] x1 x2 y { $1 \leq x1 \leq x2 \leq 20, 1 \leq y \leq 2$ }   |
| Hex. Format           | [1Bh][57h][000]  |
| Hex. Format           | [1Bh][57H][01h][x1][x2][y]   |
| Description           | Reset the window on the display. When s = 0, window is cancelled (values: x1, x2, and y are not required.)<br>When s = 1 the window will be reset (values: x1, x2, and y are required.) The x1 and x2 set the position of the left column and right column, respectively, of the window. The y sets the upper line or the lower line of the window. This function is valid within the horizontal mode. |

# CD7220/CD3220 CUSTOMER DISPLAY

**CLR** /Clear display screen, and clear string mode/  
 ASCII Format CLR  
 Dec. Format [012]  
 Hex. Format [0Ch]  
 Description All the display characters will be cleared, and the string mode will be cancelled.

**CAN** /Clear current line, and cancel string mode/  
 ASCII Format CAN  
 Dec. Format [024]  
 Hex. Format [18h]  
 Description The current line is cleared, and the string mode is cancelled.

**ESC \* n** /Brightness adjustment /  
 ASCII Format ESC \* n  
 Dec. Format [027][042] n {3<=n<=4}  
 Hex. Format [1Bh][2Ah][n]  
 Description Adjust the brightness of the vacuum fluorescent display.  
 When n = 3 ,brightness = 70 %  
 When n = 4 ,brightness =100 %

**ESC \_ n** /Set cursor ON or OFF /  
 ASCII Format ESC \_ n  
 Dec. Format [027][095] n {0<=n<=1}  
 Hex. Format [1Bh][5Fh][n]  
 Description: Set cursor ON or OFF  
 When n = 0, cursor is OFF  
 When n = 1, cursor is ON

**ESC f n** /Select international font/  
 ASCII Format ESC f n  
 Dec. Format [027][102] n  
 Hex. Format [1Bh][66h][n]  
 Description Set international font

| n | International font set | n | International font set |
|---|------------------------|---|------------------------|
| A | U.S.A.                 | N | NORWAY                 |
| G | GERMANY                | W | SWEDEN                 |
| I | ITALY                  | D | DENMARK I              |
| J | JAPAN                  | E | DENMARK II             |
| U | U.K.                   | L | SLAVONIC               |
| F | FRANCE                 | R | RUSSIA                 |
| S | SPAIN                  |   | reserved               |

Table 6-11

**ESC c n** /Select fonts /  
 ASCII Format ESC c n  
 Dec. Format [027][099] n  
 Hex. Format [1Bh][63h][n]  
 Description Select fonts

| n | International font set     | n | International                 |
|---|----------------------------|---|-------------------------------|
| A | compliance with ASCII code | R | compliance with RUSSIA code   |
| J | compliance with JIS code   | L | compliance with SLAVONIC code |

Table 6-12

# CD7220/CD3220 CUSTOMER DISPLAY

|   |  |
|---|--|
| <b>ESC = n</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description   | /Select peripheral device, Display or Printer/<br>ESC = n<br>[027][061] n {n=1,2,3}<br>[1Bh][3Dh][n]<br>Select peripheral device<br>When n = 01h, enable printer, disable display<br>When n = 02h, disable printer, enable display<br>When n = 03h, enable printer, enable display<br>For CD7220D only:<br>When n = 04h, display message for customer side<br>When n = 05h, display message for operator side  |
| <b>ESC &amp; s n m</b><br><b>[a(p1...pa)]</b><br><b>x(m-n+1) n</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description | /Set user-defined characters/<br><br>ESC & s n m [a(p1...pa)] x (m-n+1) s=1<br>[027][038][001] n m [a(p1...pa)] x (m-n+1) 20h≤n≤m≤FFh<br>[1Bh][26h][01h][n][m][a(p1...pa)] x (m-n+1) 0≤a≤5<br><span style="margin-left: 100px;">0≤p1...pa≤255</span><br>The n defines the beginning character code, and m defines the ending character code. When only one character is defined, use n = m<br>The “a” denotes the number of dots in the horizontal direction. When a <5, the dot pattern for “a” on the right side of the user-defined characters are padded with spaces p1... pa, the dot data is to defined the characters. This indicates the dot pattern for “a” in the horizontal direction from the left side. |
| <b>ESC % n</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description   | /Reset user defined character set/<br>ESC % n<br>[027][037] n {n=0 or 1 }<br>[1Bh][25h][n]<br>When n=1, user-defined characters are selected. When the user-defined characters are not defined by the ESC & command, the internal character set will be displayed.<br>When n=0, user-defined characters are cancelled and the international character set is selected.   |
| <b>ESC ? n</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description   | /Cancel user defined characters/<br>ESC ? n<br>[027][063] n {20h<=n<=FFh or 1 }<br>[1Bh][3Fh][n]<br>User-defined characters are cancelled.<br>This command cancels the defined characters specified by n.<br>If specified code is transmitted after the pattern is cancelled, the international character will be displayed.   |
| <b>ESC s 1</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description   | /Store the user defined character into EEPROM. (EEPROM type only )/<br>ESC s 1<br>[027][115] [001]<br>[1Bh][73h][01h]<br>This command is successful when the display is selected under command ESC=03h<br>If EEPROM is not supported, this command is ignored.   |
| <b>ESC d 1</b><br>ASCII Format<br>Dec. Format<br>Hex. Format<br>Description   | /Restore the user defined character from EEPROM. (EEPROM type only)/<br>ESC d 1<br>[027][100] [001]<br>[1Bh][64h][01h]<br>CD7220/CD3220 will restore user-defined characters from EEPROM, and the user-defined characters will be selected.<br>If EEPROM is not supported, this command is ignored.  |

# CD7220/CD3220 CUSTOMER DISPLAY

## 7. CHARACTER SET

(1) Control code set

| HEX | CODE    | HEX | CODE   |
|-----|---------|-----|--------|
| 00H | NULL    | 10H | DLE    |
| 01H | MD1     | 11H | DC1    |
| 02H | MD2     | 12H | DC2    |
| 03H | MD3     | 13H | DC3    |
| 04H | MD4     | 14H | DC4    |
| 05H | MD5     | 15H |        |
| 06H | MD6     | 16H |        |
| 07H | MD7     | 17H |        |
| 08H | BS,MD8  | 18H | CAN    |
| 09H | HT      | 19H |        |
| 0AH | LF      | 1AH |        |
| 0BH | HOM     | 1BH | ESC    |
| 0CH | CLR     | 1CH |        |
| 0DH | CR      | 1DH |        |
| 0EH | SLE1    | 1EH | SF1    |
| 0FH | RS,SLE2 | 1FH | US,SF2 |

(2) U.S.A font set

|     | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | A     | B     | C     | D     | E     | F     |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 20h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 30h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 40h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 50h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 60h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 70h | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

# CD7220/CD3220 CUSTOMER DISPLAY

( 3 ) International character selection  
 ( Indicate character selection by dip switch or command)

## ASCII CODE

| No. | International | 23 24 40 5B 5C 5D 5E 60 7B 7C 7D 7E   |
|-----|---------------|---|
| 0   | USA           | .00..0.000.000....000.0..0..00.0.00.000<br>00.00000.0.0.0..0..00.0.0..0..0.000<br>000000.0.0000.0..0...0.0.0...0..0.0...<br>0.0.000.00.0.0..0..0...0...0...<br>00000.000000.0..0...0...0..0..0...<br>00.00000.0..0..0..0...0..0...0...<br>00.0..0000.000...000...00.0.00...<br>00.0.0..000.0000.000.0.0..0.0..00                      |
| 1   | FRANCE        | 00.0.0..000.0000.000.0.0..0.0..0..00<br>000000.0.000.000.0...000.0.0...000...<br>00.000...0...0..0...0.0.0.0.0...<br>000000.0.0.0000....0000.000...000000.0.000000...<br>00.00000.0.0...0..0...0..0.0000...<br>00..0..0000...0..000...000.00.0000...  |
| 2   | GERMANY       | 00.0..000.0.0.0..0.0.0.0..0.00...00.<br>000000.0.000.0000.000.0.0.0.0...000.<br>00.000.0.0.0.0.0.0.0...0.000.0.0.0.0.<br>000000.0.0.000.000000.0.0.0...0000.0.0.0.0.<br>00.00000...0.0.0.0.0.0...0.00.0.0.00000.<br>00..0..0000.0.0000.000...0000.000.00.0.0  |
| 3   | U.K           | .00.0.000.000....000.0..0..00.0.00.000<br>0..0.0.0000.0..0..0.0.0...0..0.0.000<br>0000.000.00.0.0..0..0...0...0...<br>0..0.0.0000.0..0.0...0..0..0.0...<br>0..00000.0..0..0..0...0..0..0...<br>000000.0.0000.000...000...00.0.00...   |
| 4   | DENMARK I     | 00.0..000.0000.0.0..0.0...0.00.0<br>00.00000.0.0.0.000.0.0.0.0..0..0...000<br>000000.0.0000.0.0.0.0.0.0..00.0.000.0000...<br>00.0.000.0.0.0000.0.0.0.000...0.0.0.0.0...<br>000000.0.0.000000.0.0.0.0...0000.0.0.0000...<br>00.00000.0..0.0.000.00000...00.000.0.0...<br>00..0..00000.0000.0.0.0...0000.0..0000...                     |
| 5   | SWEDEN        | 00.0.0.0.0.0.0.0.000.0.0.0.00...000...<br>00.0000.0...00...0...00.00.00.<br>000000.0.000000.0.000.0000.0.000.000...000...<br>000000.0.0000.0.0.0.000000.0.00000.00000.0.00000.0<br>00.000.0...00000.0.0.0.0.0...0.0.0.0.0.0.0<br>00.0.0.000000.0.0000.0.000.0000.0000.0000.00.0   |
| 6   | ITALY         | 00.0.0.000.000...0.0.0.0.0.0.0.0.<br>00.00000.0.00.0.0.0.0.0.0.0.0.0.0.<br>000000.0.0000.000.0...000.0.0...000...000...<br>00.000.00.0...0.0.0...0.0.0000.0.0.0.<br>00000.0.0.0.000...0.00000...0.0.0000.0.00000.0.<br>00.00000.0...0.0...0.00.0.0.0.0.0.<br>00..0..0000...0000...00.0.0000.000.0000.000.                             |
| 7   | SPAIN         | 0000.0.000.0.000.0.0.0.0.0.000.00.000<br>0.0.00000.0.0.000...00.0.0...000.0.0.00.<br>0000.00.0000...0.0.0...0...<br>0.0.000.00.0.0.00.0.0...000.0.0...<br>0.0000.0.0.0.0000.0.0.0.0.0.0.0.0.<br>0.00.0.0000.0.0.0.000...0.0.00...   |
| 8   | JAPAN         | 00.0.0.000.000.0.0000.0.0.00.0.00.000<br>00.00000.0.0.0.0.0.0.0.0.0.0.0.000<br>000000.0.0000.0.00000.0.0.0.0.0.0...<br>00.000.00.0.0.0.0...0...0...<br>00000.000000.0.00000.0...0..0..0...<br>00.00000.0.0.0...0..0...0...<br>00..0..0000.000.0.000...00.0.00...  |
| 9   | NORWAY        | 00.0.0.0.0000...0.000.0.0.0...000.0.0.<br>00.000.0.0.0.000.00.0.0...0.0.0...<br>000000.0.00000.0.0.00.000.0.0.000.00.000.000...<br>00.0.0.0...00000.0.0.0.0.0.0.0.0.0.0.0.0<br>00000.0.0000.000.00.000000.0.00000.0000.0.0.0000.0.0<br>00.0.000.0.0.0.000.0.0.0.0.0.0.0.0.0.0.0.0.0<br>00.0.0.00000.0.0000.0.0.000.00000.00.0000.00.0 |
| 10  | DENMARK II    | 00.0..0.0000...0.000.0.0.0...000.0.0.<br>00.0000.0.0.0.000.00.0.0...0.0.0...<br>000000.0.00000.0.0.00.000.0.000.00.0.000.000...<br>00.000.0...0000.0.0.0.0.0.0.0.0.0.0.0.0<br>00000.0.00000.000.00.000000.0.00000.0000.0.0.0000.0.0<br>00.00000.0.0.000.0.0.0.0.0.0.0.000.0.0.0.0<br>00..0..00000.0000.0.0.000.00000.00.0.0000.00.0   |
| 11  | SLAVONIC      | 00.0..000.000...000.0.0.0.0.0.00.000<br>00.00000.0.0.0...0.00.0.0.0.0.0.000<br>000000.0.0000.0.0...0.0.0...0..0..0...<br>00.000.00.0.0.0...0...0...<br>00000.0.0.0000.0.0.0...0.0.0...<br>00.0000.0.0.0.0.0...0..0.0...<br>00..0..0000.000...000...00.0.00...   |
| 12  | RUSSIA        | 00.0..000.000...000.0.0.0.0.0.00.000<br>00.00000.0.0.0...0.00.0.0.0.0.0.000<br>000000.0.0000.0.0...0.0.0...0..0..0...<br>00.000.00.0.0.0...0...0...<br>00000.0.0.0000.0.0.0...0.0.0...<br>00.0000.0.0.0.0.0...0..0.0...<br>00..0..0000.000...000...00.0.00...   |

# CD7220/CD3220 CUSTOMER DISPLAY

(4) PC-437 Standard Europe international font set

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

(5) PC-850 ( multilingual international font set)

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

# CD7220/CD3220 CUSTOMER DISPLAY

(6) PC-860 Portuguese international font set

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

(7) PC-863 Canadian French international font set

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

# CD7220/CD3220 CUSTOMER DISPLAY

(8) PC-865 NORDIC (international font set)

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

(9) SLAVONIC Font set

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

# CD7220/CD3220 CUSTOMER DISPLAY

(10) RUSSIA font set

|     | 0                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 90h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| B0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| C0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| D0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| E0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| F0h | [RUSSIA font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

(11) Katakana font set

|     | 0                              | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 90h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| A0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| B0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| C0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| D0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| E0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| F0h | [Katakana font set characters] |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

# CD7220/CD3220 CUSTOMER DISPLAY

(12) PC-858

|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

(13) WPC1252

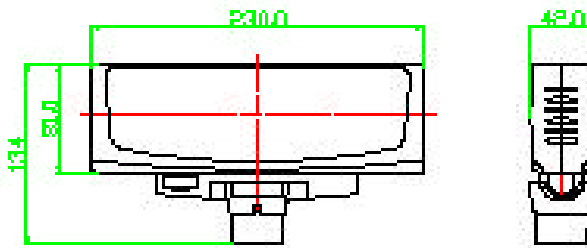
|     | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | A    | B    | C    | D    | E    | F    |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 80h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 90h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| A0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| B0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| C0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| D0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| E0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| F0h | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |

# CD7220/CD3220 CUSTOMER DISPLAY

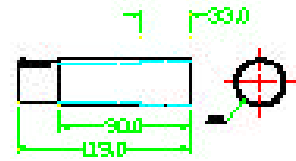
## 8. DIMENSION

### 8.1 CD7220/CD7220D

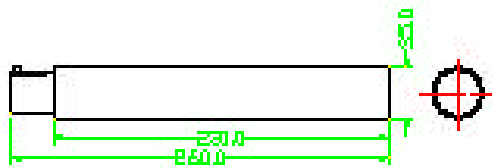
1. CD7220/CD7220D



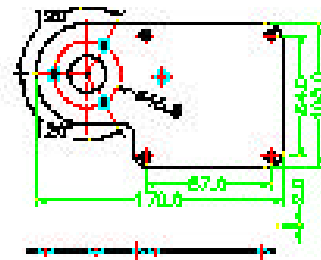
3. Short Pole



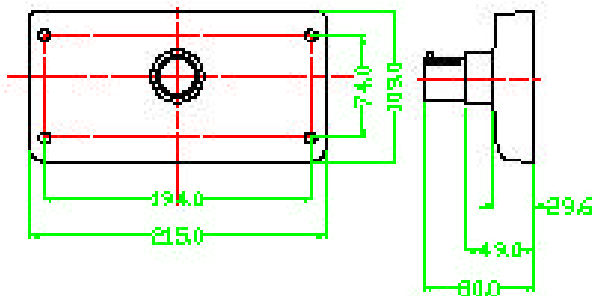
2. Long Pole



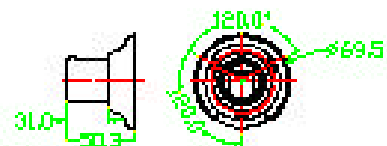
5. Metal Plate



4. Rectangle Base



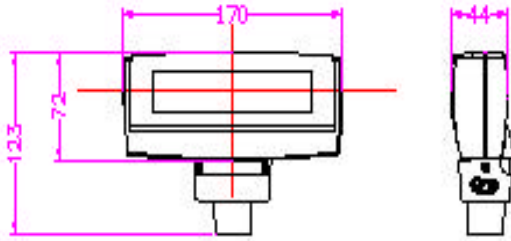
6. Circular Base



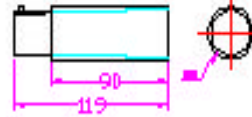
# CD7220/CD3220 CUSTOMER DISPLAY

## 8.2 CD3220

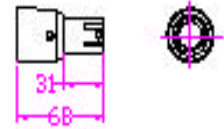
1. CD3220



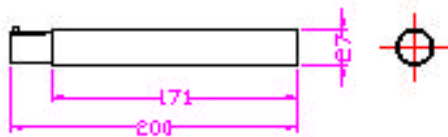
3. Short Pole



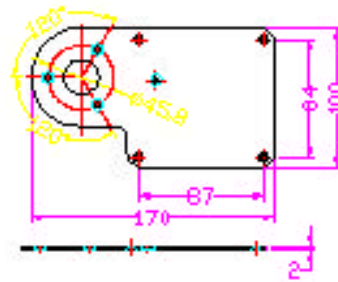
7. CD-3220-7220 Converter



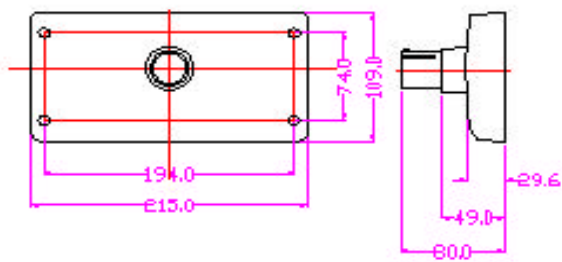
2. Long Pole



5. Metal Plate



4. Rectangle Base



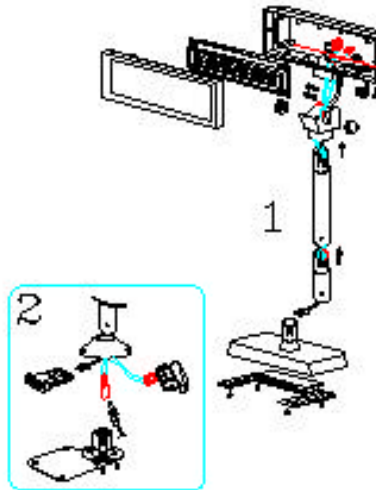
6. Circular Base



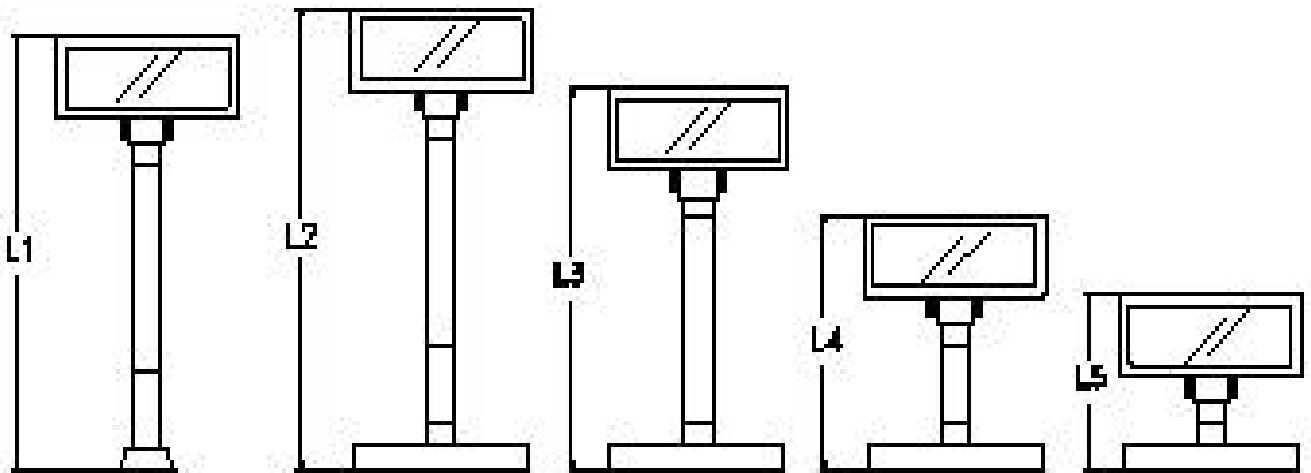
# CD7220/CD3220 CUSTOMER DISPLAY

## 9. INSTALLATION GUIDE

### 9.1 CD7220/CD7220D

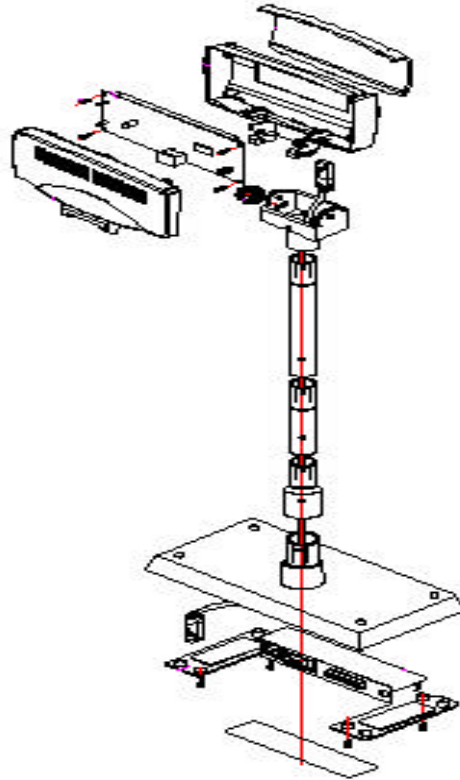


| L1  | L2  | L3  | L4  | L5  |
|-----|-----|-----|-----|-----|
| 474 | 504 | 414 | 273 | 183 |
| mm  |     |     |     |     |



# CD7220/CD3220 CUSTOMER DISPLAY

## 9.2 CD3220



| L1  | L2  | L3  | L4  | L5  |
|-----|-----|-----|-----|-----|
| 500 | 530 | 440 | 299 | 209 |
| mm  |     |     |     |     |

