



## User Guide



M42381-001

RMN: HSN-PD02

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# **1. Introduction**

## **1.1. Use and disclosure**

This document shall apply only to the product(s) identified herein. This technical specification defines the requirements for HP Engage 3x16 Pole Display, using a USB bus power interface.

The supplier is requested to implement a change control process for tracking all changes, including revision history. Devices shall be labeled and identifiable based on the revision. After the release to production, all changes must be communicated as an Engineering Change.

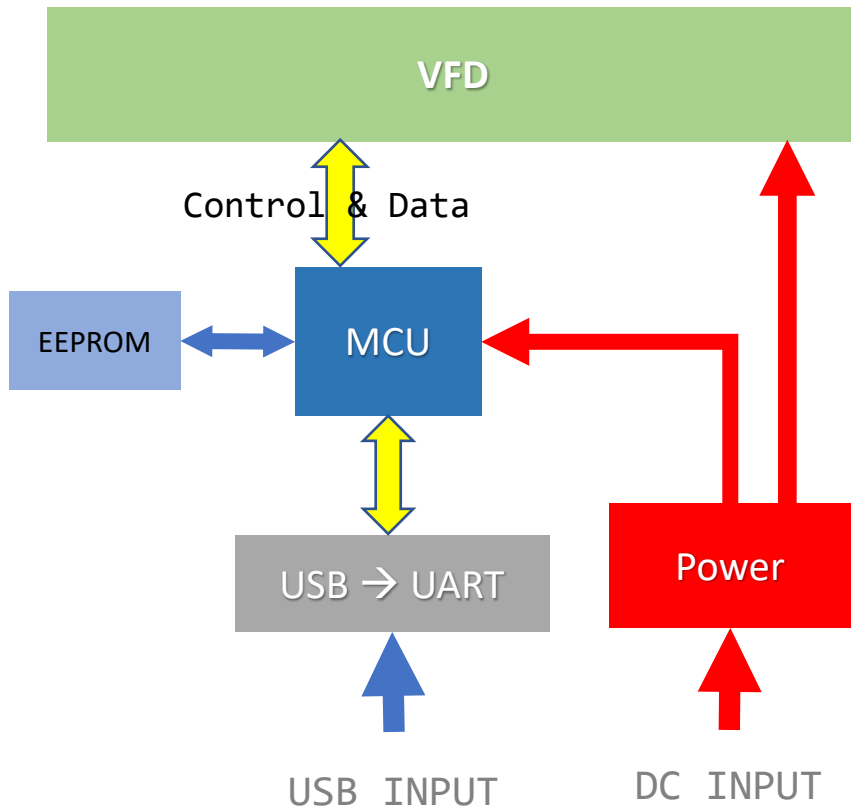
## 2. Specification

### 2.1. General specification

Item	HSN-PD02
Display Method	Vacuum Fluorescent Display (Blue-green)
Resolution	256 × 64 Dots
Display Mode	Alphanumeric: 32 digits × 3 lines 32 digits × 4 lines
Character Dot Matrix	8 × 16 dots for single-byte characters 16 × 16 dots for double-bytes characters
Dot Size	0.49 (W) × 0.48 (H) mm
Dot Pitch	0.64 (H) × 0.63 (V) mm
Viewing Direction	Maximum 90°
Average Brightness	600 cd/m <sup>2</sup>
Character type	Alphanumeric and Compound (2-Bytes) Words
Character size	Font 8 × 16 – 4.97 (W) × 9.93 (H) mm Font 16 × 16 – 10.09 (W) × 9.93 (H)mm
User Define Character	96 characters
Viewing Area	163.69(W)X40.17 (H) mm
Module Dimension	230 (L) × 66.5 (W) × 26 (D) mm
Top Head Dimension	240 (L) × 95 (W) × 49 (D) mm
Viewing Angle	Maximum 90°
Net Weight	Approximately 1650 grams
Commands Mode	UITIMATE
Language	US English, Japanese
Interface	USB
Baud rate	Direct connection 9600 or 19200 bps
MTBF	30,000 hours
Power Consumption	12 V – 400 mA
EMC / Safety standards	CB, VCCI

## 2.2. Electrical specification

### 2.2.1. Block diagram



### 2.2.2. Power request

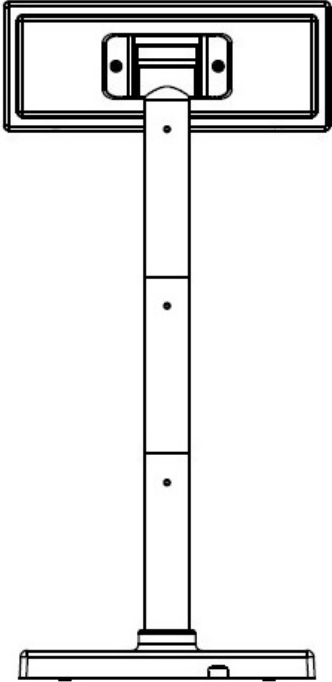
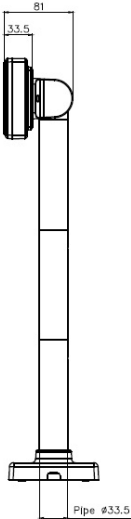
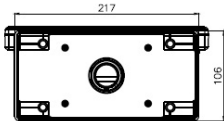
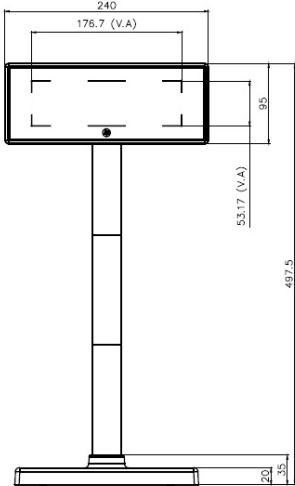
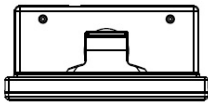
Voltage (typical): 12 VDC +/- 10%
Current consumption (typical): 400 mA

### 2.2.3. Communication interface

Interface	USB (Virtual COM Port)
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The default protocol of the virtual RS232 port is 9600 bps, non-parity, 8 data bits, 1 stop bit and with DTR/DSR control.

2.2.4. Mechanical drawing



## **3. Software**

### **3.1. Supported operating systems**

#### **Windows**

- Windows® 10
- Windows 8.1/8 Pro (64 and 32 bit)
- Windows Embedded 8.1/8 Industry
- Windows Embedded POSReady 7 (64 and 32 bit)
- Windows 7 Professional (64 and 32 bit)
- Windows Embedded POSReady 2009

#### **Linux**

- Red Hat® Enterprise Linux®/CentOS 6 (64 and 32 bit) and newer
- Suse Linux® Enterprise Point of Service 11 (64 or 32 bit) and newer
- Ubuntu 12.04 LTS (64 or 32 bit) and newer

#### **Android**

- Android™ 4.0 and newer



## 3.2. Command list

### 3.2.1. ULTIMATE command mode

Command	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-most position
CR	0D	Move cursor to left-most position
HOM	0B	Move cursor to home position
US B	1F 42	Move cursor to bottom position
US \$ <i>xy</i>	1F 24 <i>xy</i>	Move cursor to specified position $1 \leq x(\text{column}) \leq 20 ; 1 \leq y(\text{row}) \leq 2$
US C <i>n</i>	1F 43 <i>n</i>	Select/cancel cursor display $n=0$ , canceled ; $n=1$ , selected
CLR	0C	Clear display screen
CAN	18	Clear cursor line
US X <i>n</i>	1F 58 <i>n</i>	Brightness adjustment $1 \leq n \leq 4$
US E <i>n</i>	1F 45 <i>n</i>	Blink display screen $0 \leq n \leq 255$ ( $n \cdot 50\text{msec}$ ) ON / ( $n \cdot 50\text{msec}$ ) OFF $n=0$ , blinking is canceled $n=255$ , display is turned off
ESC @	1B 40	Initialize display
ESC t <i>n</i>	1B 74 <i>n</i>	Select character code table (see Table 1)
ESC R <i>n</i>	1B 52 <i>n</i>	Select international character set (see Table 2)
US r <i>n</i>	1F 72 <i>n</i>	Select/cancel reverse character $n=0$ , canceled; $n=1$ , selected
US MD1	1F 01	Specify overwrite mode
US MD2	1F 02	Specify vertical scroll mode
US MD3	1F 03	Specify horizontal scroll mode
US T <i>hm</i>	1F 54 <i>hm</i>	Set and display time $0 \leq h \leq 23 ; 0 \leq m \leq 59$
US U	1F 55	Display of time counter
ESC u E..CR	1B 75 45 <i>hh</i> 3A <i>mm</i> 0D	Set and display 24-hour time $0x30 \leq h, m \leq 0x39$
ESC u 1..CR	1B 75 49 [data x 40] 0D	Two-line display
ESC [ D	1B 5B 44	Move cursor left
ESC [ C	1B 5B 43	Move cursor right
ESC [ A	1B 5B 41	Move cursor up
ESC [ B	1B 5B 42	Move cursor down

ESC [ H	1B 5B 48	Move cursor to home position
ESC [ L	1B 5B 4C	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 xy	1B 6C xy	Move cursor to specified position $1 \leq x \leq 20, y=1,2$
ESC u A..CR	1B 75 41 [data x 32] 0D	Display data on line 1
ESC u B..CR	1B 75 42 [data x 32] 0D	Display data on line 2
ESC u C..CR	1B 75 43 [data x 32] 0D	Display data on line 3
GS r A	1D 72 41 [data x 96] 0D	Marquee on line 1
GS r B	1D 72 42 [data x 96] 0D	Marquee on line 2
GS r C	1D 72 43 [data x 96] 0D	Marquee on line 3
GS r D	1D 72 44 [data x 96] 0D	Marquee on line 4

## 4. Appendix

### 4.1. Table 1 Codepage list

Page		Codepage	Language
Dec	Hex		
0	0x00	PC437	USA, Standard Europe
1	0x01	Katakana	Japanese
244	0xF4	CP932	Japanese Shift JIS

### 4.2. Table 2 International character set

Index <i>n</i>		Country	ASCII code											
Dec	Hex		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
00	00	USA	#	\$	@	[	\	]	^	`	{		}	~
01	01	France	#	\$	à	°	ç	§	^	`	é	ù	è	¨
02	02	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
03	03	U.K.	£	\$	@	[	\	]	^	`	{		}	~
04	04	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
05	05	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
06	06	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
07	07	Spain I	Pt	\$	@	ı	Ñ	ı	^	`	¨	ñ	}	~
08	08	Japan	#	\$	@	[	¥	]	^	`	{		}	~
09	09	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	0A	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	0B	Spain II	#	\$	á	ı	Ñ	ı	é	`	ı	ñ	ó	ú
12	0C	Latin America	#	\$	á	ı	Ñ	ı	é	ü	ı	ñ	ó	ú
13	0D	Korea	#	\$	@	[	₩	]	^	`	{		}	~
14	0E	Slovenia/Croatia	#	\$	Ž	Š	Đ	Ć	Č	ž	š	đ	ć	č
15	0F	China	#	¥	@	[	\	]	^	`	{		}	~
16	10	Vietnam	đ	\$	@	[	\	]	^	`	{		}	~
17	11	Slovakia	#	\$	@	[	\	]	^	`	{		}	~
18	12	Russia	#	\$	@	[	\	]	^	`	{		}	~