SURTRONIC

Platform Displays 's Hertogenbosch

V103

Version History

Version	Date	Author	Description
V100	27-10-2020	J. Vermaas	Initial
V101	28-10-2020	J. Vermaas	Final
V102	28-10-2020	J. Vermaas	Added

Reference list

Document	Description
Bijlage 7 PvE versie 26-6-20.pdf	Chapter 8 – bus station 's Hertogenbosch
Mijksenaar V2.2.pdf	Advice about rendering data for Dynamic Passenger Information Systems
308Prot_v141_ENG.pdf	Protocol description LOG308 diagnostics board

Distribution list

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1. Preface

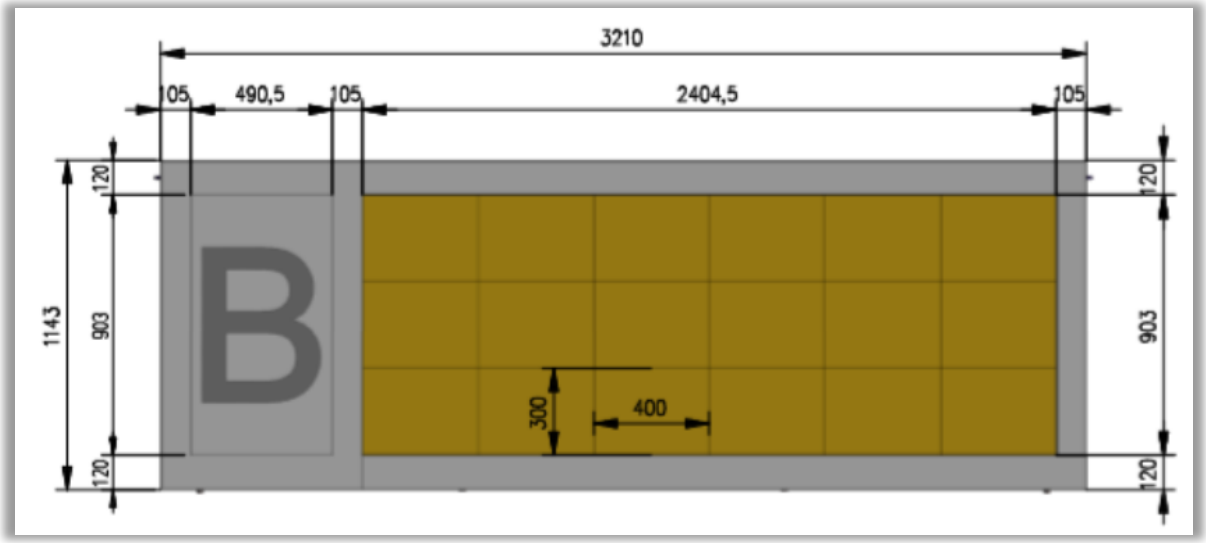
The bus station ‘s Hertogenbosch has 9 platform displays which will be replaced by Full Colour (FC) displays. This document briefly discusses the hardware so that the system integrator can devise the proper software.

1.1. General situation

The 9 platform displays will be mounted fairly high as the current ones:

The new FC displays consists of 6x3 modules (HxV) 40x30pixels each, totalling240x90px.

The LED pitch is 10mm, so the active area will be 2400x900mm as indicated below:



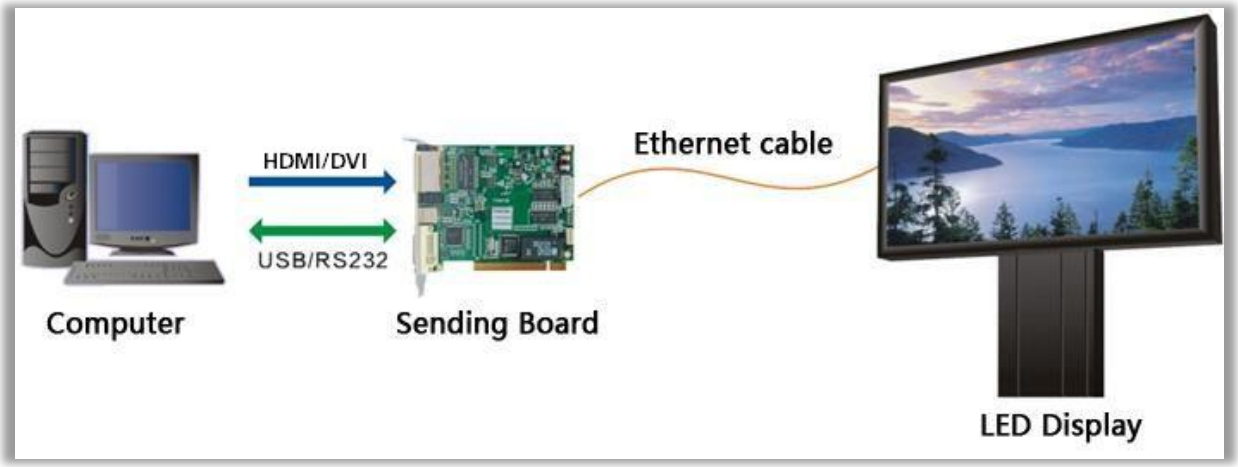
1.2. Specifications

- [B-166] The top will have static headers indicating **Bus**, **Richting** and **Vertrek** using the font Frutiger LT Std Bold.
- [B-169] The reading distance is 30 metres
- [B-171] The format and behaviour will be in accordance with Mijksenaar v2.2
- [B-172] The active area will display 6 lines RTPI an 1 line of free text
- [B-173] Each field in the display will have the following function
    - Show text continuously
    - Show multiple items alternating (via-destination)
    - Show a single text (via-destination) scrolling from right to left
    - The above using the displacement principle
- [B-174] Each line should contain up to 30 characters:
    - 3+1 for the line number "XXX_"
    - 19+1 for the destination "XXXXXXXXXXXXXXXXXXX_"
    - 2+1+3 for the departure time "XX.min"

      (the _ indicates spacing)
- [B-175] Be able to show the bus icon instead of the departure time
- [B-180] The free text can be up to 255, which must be able to scroll fluently
- [B-181] Text is preferably white or amber on a black background

1.3. Hardware interface

The drawing below indicates the (simplified) interface between the host and display:



Basically the host (Computer/SBC) shall reserve a part of the video screen to generate display data. This video data will be transferred via HDMI to the Full Colour LED display. Diagnostic data is received serially (RS232) from the Surtronic LOG308. The protocol is described in **308Prot_v141_ENG.pdf**.

1.4. Data rendering

The font used for the header is Frutiger LT Std Bold. It won't be possible to render this in the given matrix, but we need a similar readable and consistent font for this application. Especially chapter 6 of **Mijksenaar v2.2**. gives guidelines how font and symbols need to be designed.

From the requirements we can calculate the x-height and *line distance*:

Reading distance [m]	Mijksenaar §6.2 Leesafstand	x-height [mm]	Line Distance [mm]	Amount of Lines	Total Height [mm]
30	2,25	67,5	135,0	7	945

The Line Distance is 2 times the x-height, according to Mijksenaar. The Total Height is calculated by simply multiplying the Line Distance by the Amount Of lines. But it will be less because there is no line spacing after the last line.

Since the pitch is 10 mm we find that x-height must be 7 in pixels and we suggest:

				Physical display height in pixels =	90		Display width =	240
Ascent	x-hoogte	Descent	White	Total Lines	Total Height		Average Width	Total Chars	Total Width
2	7	3	1	7	90		7	30	210

This results in the following solution for the font:

LineHeight	2 lines	LineDist	
1	a		x
2	a		x
3	x		x x x x x x x x x x x x x
4	x		x x x x x x x x x x x x x
5	x		x x x x x x x x x
6	x		x x x x x x x x x
7	x		x x x x x x x x x x x x x
8	x		x x x x x x x x x x x x x
9	x		x x x x x x x x x x x x x
10	d	2x	x
11	d	2x	x
12	d	2x	x x x x
<space>		2x	
1	a	2x	x x
2	a	2x	x x x
3	x	2x	x x x x x x x x x x x x
4	x	2x	x x x x x x x x x x x x
5	x	2x	x x x x x x x x x x x
6	x	2x	x x x x x x x x x
7	x	2x	x x x x x x x x x x x x
8	x	2x	x x x x x x x x x x x x
9	x	2x	x x x x x x x x x x x
10	d		x
11	d		x
12	d		x
	Line Dist	13	
	Lines	7	
	Total	91	
	<space>	1	
	board	90	

Please share upfront the font(s) and layout that *you* are going to use.