UNI SYSTEM
PASSION FOR DISPLAYS

USEM312SBLUSN

31.2″ E-paper Module with Unisystem`s Controller

SPECIFICATIONS

Rev. 1.0
2021-02-11

Revision Record

Rev No.	Rev Date		Author	Remarks
1.0	11.02.2021	Documentation Release	PDominik	-

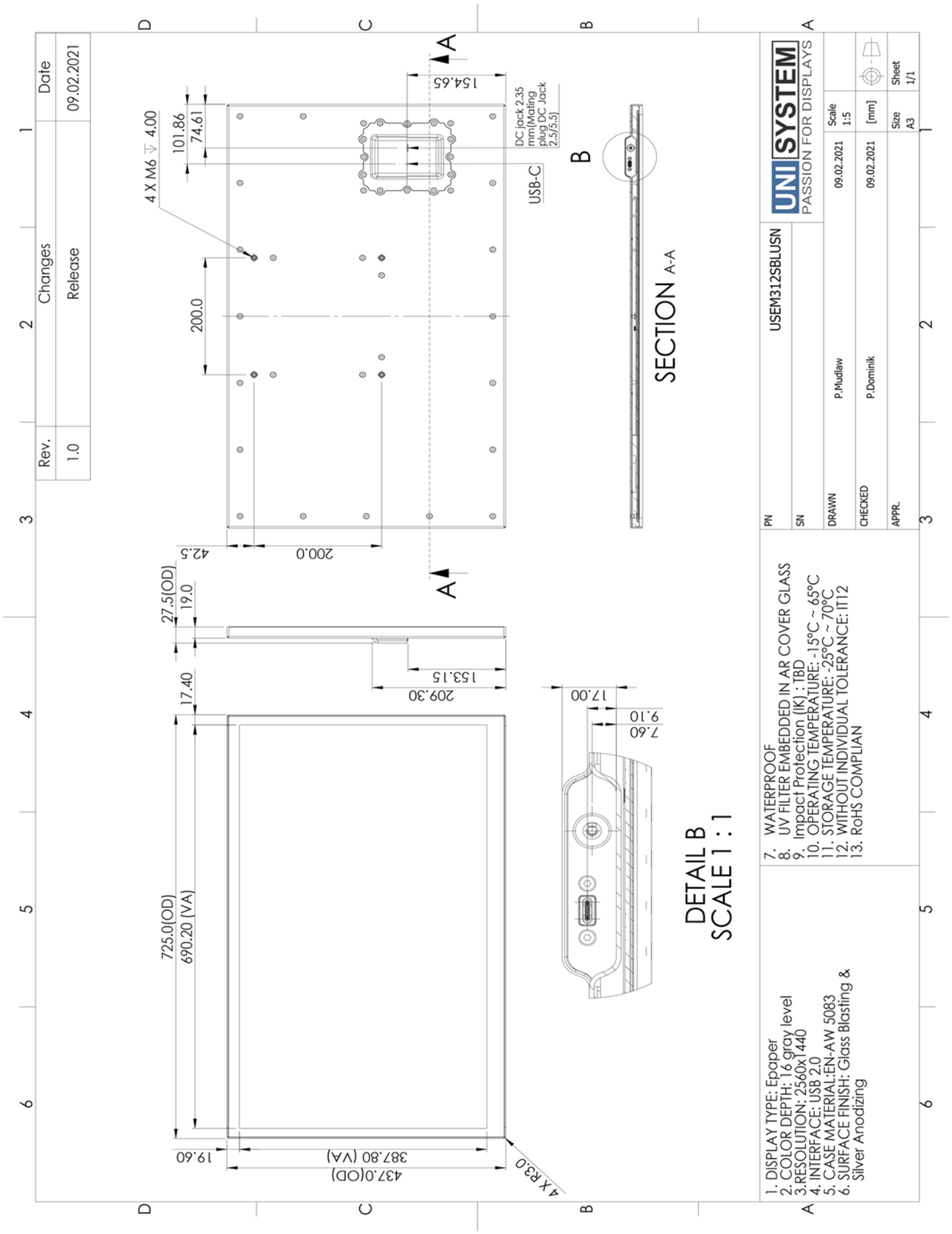
Contents

1. General Description

USEM312SBLUSN is a comprehensive solution consisting of Electronic Paper Display (EPD), Unisystem's EPD Controller and protective case design for outdoor usage. Front glass with UV-cut together with aluminium frame protects the display from environment influence. It ensures easy integration and implementation of the module in the final product. The display has 31.2" active area with 2560x1440 pixels and can show content with 2, 4, 8, and 16 gray levels (1 to 4 bits). The Unisystem's EPD Controller supports both partial changes of the displayed image and flashless mode. Communication interface is USB 2.0.

Size of display (inch)	31.2
Resolution (Pixel)	2560 (H) x 1440 (V)
Controller Interface	USB 2.0
Active Area (mm)	691.2 (H) x 388.8 (V)
Greyscale Levels	2 to 16
Outline Dimensions (mm)	725 (H) x 437 (V) x 27.5 (D)
Pixel Pitch (mm)	0.27
Operating temp. (°C)	-15 to +65
Storage temp. (°C)	-25 to +70

2.Mechanical drawing



3.Driving Board Block Diagram

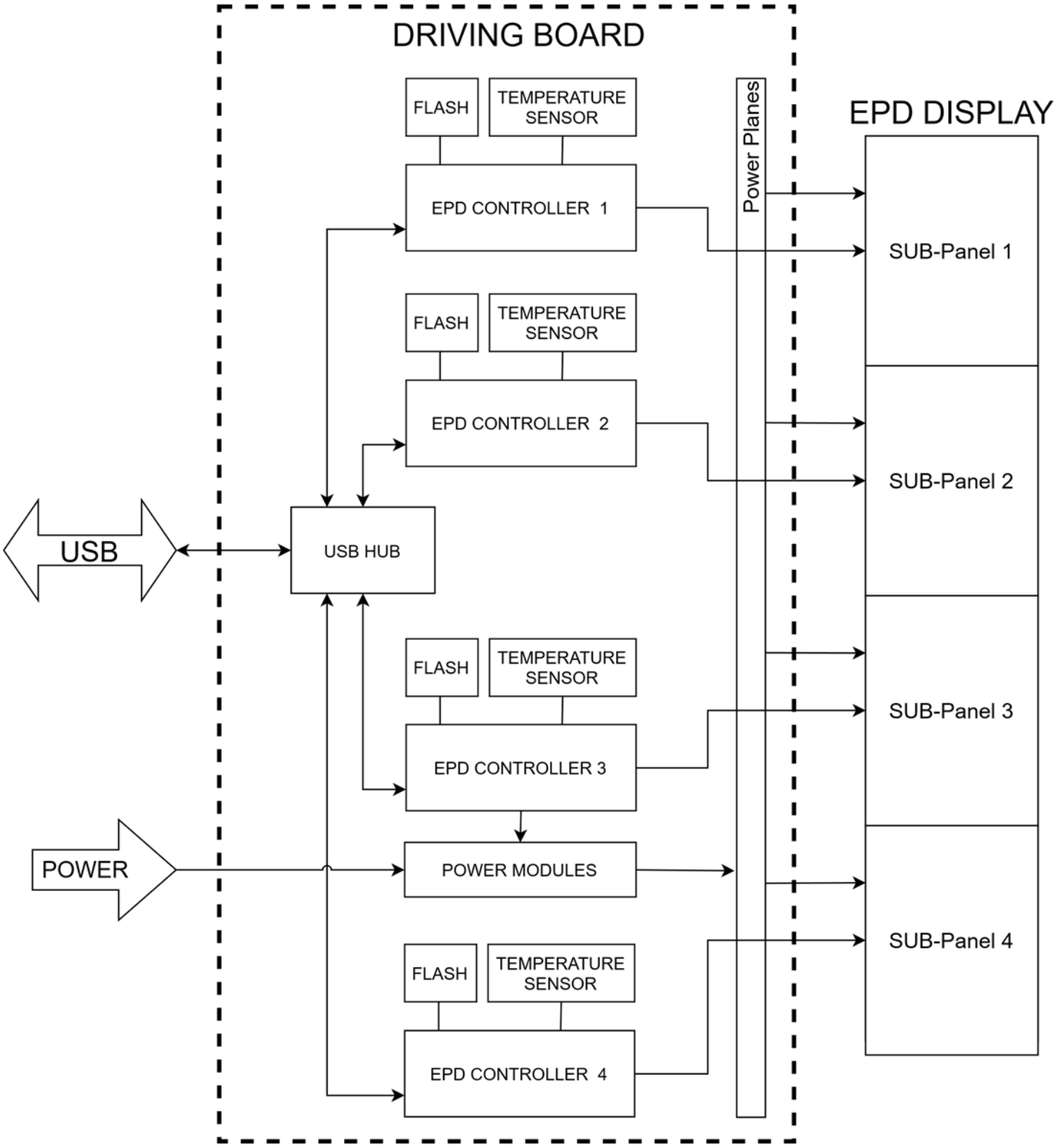


Figure 3.1

4. Connectors

There are 2 connectors in the module intended for the user: DC JACK 2.5/5.5 for the power supply and USB C connector. Pinout for USB C complies with USB 2.0 standard.

5. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
USEM Power Supply	V_{IN}	-0.3	15	V
Operating temperature	T_{op}	-15	65	°C
Storage temperature	T_{st}	-25	70	°C

Table 4.1 - Absolute Maximum Ratings

Note 4.1 Exceeding one or more limiting values from Table 4.1 may cause permanent damage to the module.

Note 4.2 For USB maximum ratings, please refer to USB 2.0 specification.

6.Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
USEM Power Supply	V_{IN}	5	12.0	13.5	V
Operating temperature (with 1-bit WF)	T_{op_1bit}	-15	-	65	°C
Operating temperature (with 4-bit WF)	T_{op_4bit}	0	-	50	°C
Supply Current (when V_{IN} = 12V, during screen change)	I_{IN}	-	0.23	0.8	A
Power Consumption (when V_{IN} = 12V, during screen change)	P_{IN}	-	2.76	9.6	W

Table 5.1 - Electrical Characteristics

Note 5.1 For USB electrical characteristics, please refer to the USB 2.0 specification.

7. Subpanels

EPD panel includes four subpanels marked in figure 6.1 as SUB1-SUB4.

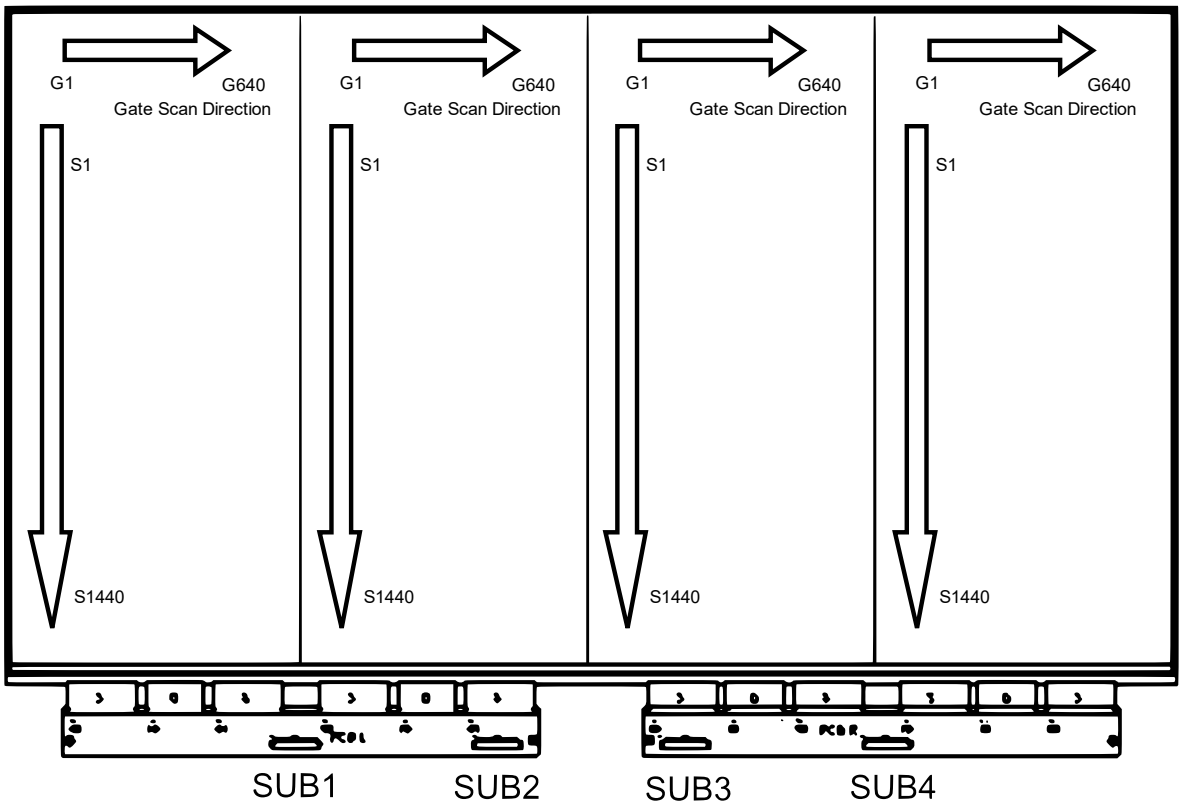


Figure 6.1 - Subpanels of display

Using USB communication, the subpanel is selected by communication with a USB device with the corresponding name of the device. Table 6.1 presents the collation of USB device names corresponding to subpanels:

Subpanel	USB device name
SUB1	UNISYS UniEPDC312BWN0-1 USB Device
SUB2	UNISYS UniEPDC312BWN0-2 USB Device
SUB3	UNISYS UniEPDC312BWN0-3 USB Device
SUB4	UNISYS UniEDPC312BWN0-4 USB Device

Table 6.1 - Collation of subpanels and USB device names

8. Display modes

USEM312SBLUSN has six modes of displaying the content – table 7.1 presents their names:

Mode	Name	Description	Type
0	INIT	Initialize	Global
1	DU	Direct update	Local
2	GC16	Grayscale Clear 16 Levels	Global
3	GCC16	Grayscale Clear 16 levels, slower and more precise than Mode 2	Global
4	A2	Animation	Local
5	GL16	Grayscale 16	Local

Table 7.1 - Display modes

9. Example Application

Exemplary application code is available on request. Please contact your supplier.

10. Precautions

Please pay attention to the following precautions while using the USEM312SBLUSN.

Handling

A sharp object can leave scratches on the aluminium part of the case.

Storage and Operation

1. The module should be stored and operated in suggested ranges of temperature.
2. Do not pull the interface connector in or out while the module is operating.
3. Do not hit the module with sharp-edged or hard objects.

Others

1. The product meets the specification requirement of the RoHS standard criteria.
2. Keep the module's surface clean for the proper optical characteristics.
3. If the display breaks, do not touch the electrophoretic material. In case of contact with electrophoretic material, use water and soap to remove particles from the skin.

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