Contents in this document may change without prior notice.
Please obtain the delivery specification for the final design.

EM Series
10.1” Wide
24VDC
Open Frame Panel Computer
With Linux Embedded Touch Screen

# EM8/EMG8

Model: EM8-W310A7-0024-207
EMG8-W310A7-0024-207

# Product Specification

DMC Co., Ltd.
https: //www.dush.co.jp/english/

## Table of Contents

1. Summary .... 3
2. Product Model .... 3
3. Packaging Specification .... 3
4. Specification .... 4
    - 4-1 Functions .... 4
    - 4-2 Display .... 5
    - 4-3 Touch screen .... 5
    - 4-4 General Specification .... 6
    - 4-5 Environment .... 6
    - 4-6 Installation .... 6
    - 4-7 Name of Parts .... 7
    - 4-8 External Interface .... 9
        - 4-8-1 microSD Card Slot .... 9
        - 4-8-2 Serial Interface（SIO1/SIO2） .... 9
        - 4-8-3 Ethernet .... 10
        - 4-8-4 USB Host Interface .... 10
        - 4-8-5 USB Device Interface .... 10
        - 4-8-6 DIO Interface .... 11
        - 4-8-7 SPI/PWM Audio Interface .... 12
        - 4-8-8 Power Connector .... 12
        - 4-8-9 Battery Interface .... 13
        - 4-8-10 Default Switch Setting at Shipment .... 13
    - 4-9 Linux OS .... 14
        - 4-9-1 Application Software Development Environment .... 14
        - 4-9-2 Embedded Application .... 14
        - 4-9-3 IS-APP .... 14
5. Installation .... 15
    - 5-1 Installing Condition .... 15
    - 5-2 Panel Opening Example .... 15
6. Product Label .... 16
7. Complying Standards .... 16
    - 7-1 RoHS Directives .... 16
8. List of Options .... 17
9. Warranty .... 18
    - 9-1 Warranty Period .... 18
    - 9-2 Warranty Exceptions .... 18
10. Product Discontinuance .... 18
11. Others .... 19

Appendix
  Outline Diagram: SM3-002153-10・SM3-002328-10

# 1. Summary

This is a panel computer with 10.1” LCD and touch screen.

Touch screen lineup includes analog resistive type and projective capacitive type touch screens.

The product will be referred to as EM8 hereinafter.

# 2. Product Model

| Model | Specification | | | |
|---|---|---|---|---|
| | LCD Size | Touch screen Type | Power | HMI Application |
| EM8-W310A7-0024-207 | 10.1” | Analog Resistive | 24VDC | IS-APP [*1] |
| EMG8-W310A7-0024-207 | 10.1” | Projective Capacitive | 24VDC | IS-APP [*1] |

*1 When using HMI application ‘IS-APP (InfoSOSA Application)’ please purchase the development kit (SWDK-101).
For more information on ‘IS-APP (InfoSOSA Application)’ please refer to IS-APP Start-up Guide.

# 3. Packaging Specification

| Contents | Specification | Packaging Box Dimensions |
|---|---|---|
| EM8-W310A7-0024-207 | 5 units/box [*1] | 356(W) x 356(D) x 210(H) mm |
| EMG8-W310A7-0024-207 | 5 units/box [*1] | 302(W) x 302(D) x 260(H) mm |

*1: Maximum unit per box: 5 units

# 4. Specification

## 4-1 Functions

| Items | | | Specification | |
|---|---|---|---|---|
| | | | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| CPU | | | i.MX6ULL 792MHz (ARM Cortex-A7 Single Core) by NXP | |
| RAM | | | DDR3-SDRAM 512MB | |
| ROM | | | NAND Flash 512MB | |
| Interface | Serial | SIO1 | RS232C: 1CH (5 pin nylon connector) | |
| | | SIO2 | RS422/485: 1CH (6 pin nylon connector) Terminal resistance: 120Ω | |
| | Ethernet | | Ethernet 10BASE-T/100BASE-TX: 1CH | |
| | microSD Card [*1] | | microSD/ SDHC Card slot: 1CH | |
| | USB host [*2] | | USB2.0: 1CH (TYPE-A connectors)<br>USB devices that can be used: keyboard, mouse (HID Class), USB memory (Mass Storage Class) | |
| | USB device | | USB2.0: 1CH (mini TYPE-B connectors) | |
| | DIO | | DIN: 4 points (non-isolated TTL Schmitt Trigger input)<br>DOUT: 4 points (non-isolated open collector output)<br>(12 pin Nylon Connector) | |
| | SPI/PWM Audio | | SPI/PWM Audio OUT: 1CH (7pin Nylon connector)<br>SPI and PWM audio cannot be used at the same time. | |
| | Buzzer | | On board | |
| | RTC [*3] | | RTC with battery backup<br>Error at time of backup: ±65 seconds/ month<br>(at ambient temperature of 25°C) | |

*1 Does not guarantee accurate operation for all SD memory cards available in the market.

*2 Does not guarantee accurate operations for all USB devices available in the market.

*3 Above chart shows RTC with battery backup embedded on the EM8.
EM8 normally uses the timer in the CPU for time display.
If time according to the specification is needed, please refer to the RTC embedded in the EM8.
When using in a system where time error causes issues, please set to correct the time on a regular basis.

## 4-2 Display

| Items | | Specification | |
|---|---|---|---|
| | | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| Display | Device | 10.” TFT LCD | |
| | Resolution | 1024(W)×600(H) | |
| | Color | 65,536 colors | |
| | Backlight | LED backlight (not replaceable) | |
| | Brightness | 360cd/m$^2$ | 400cd/m$^2$ |
| | Backlight brightness adjustment | Adjustable in 8 levels | |
| | Backlight life *1 | 50,000 hours average | |

*1 Time until brightness declines by 50% from the initial value at maximum brightness in ambient temperature of 25°C.

## 4-3 Touch screen

| Items | Specification | |
|---|---|---|
| | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| Method | Analog resistive | Projective capacitive |
| Input Method | Finger | Finger |
| Maximum number of simultaneous inputs | 1 point | 2 points *1 |
| Operating life | Continuous typing (finger input):<br>1000000 times | Continuous typing (finger input):<br>5000000 times |

*1 Application for two-point simultaneous input of touch screen must be made by the customer.

Note: For analog resistive touch screens, please perform coordinate calibration when installing to a device in order to use it accurately.

The projective capacitive touch screens of EM8 have auto-calibration function and will automatically calibrate according to the environment installed. However, please note it may not adapt to all installed environments.

If the touch screen operations become unstable, please reconsider the environment in which it is installed.

Touch operation may not operate accurately if the surface of the touch screen is wet.

Please wipe the surface of the touch screen before use.

## 4-4 General Specification

| Items | | Specification | |
|---|---|---|---|
| | | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| Power | Rated voltage | 24VDC | |
| | Voltage tolerance | 24VDC±20% | |
| | Power consumption [*1] | MAX 6W, TYP 4.5W | |
| | FG connection | GND (Signal GND) and FG (Frame GND) are connected inside the unit. | |

*1 Power consumption of the EM8 unit only. Please consider the power consumption of the USB device when using the USB.

Note: If power supply with slow rising and falling of power is used, it may not operate properly.
Also, when rebooting the EM8, leave the power OFF for a certain period of time after turning the power OFF and avoid turning the power back ON immediately. If failed to do so, it may not start up accurately.

## 4-5 Environment

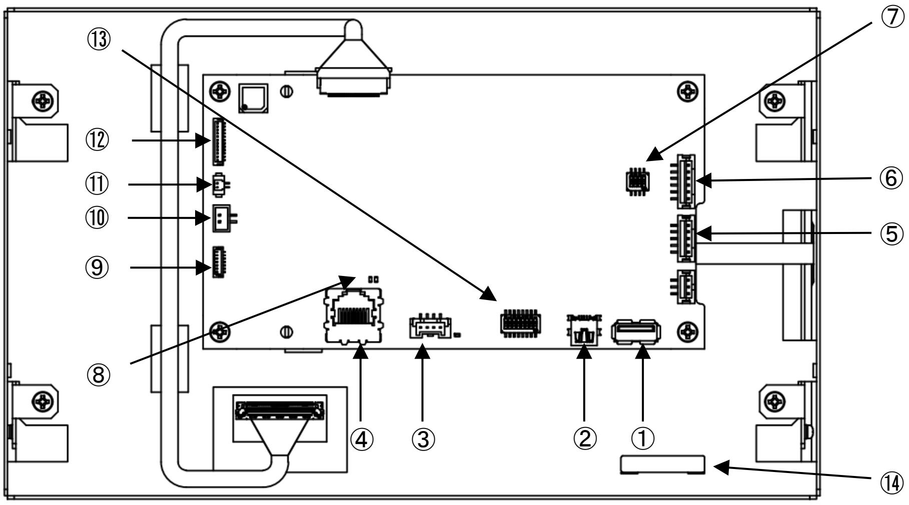
| Items | Specification | |
|---|---|---|
| | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| Ambient operating temperature (Inside cabinet and display side) | -10 to 60°C | |
| Ambient storage temperature | -20 to +80°C | |
| Ambient operating humidity | 10 to 90%RH (Non-condensing. Wet-bulb temperature is 39 °C or less) | |
| Ambient storage humidity | 10 to 90%RH (Non-condensing. Wet-bulb temperature is 39 °C or less) | |
| Dust | 0.1mg/m$^3$ or under (Conductive dust is prohibited) | |
| Corrosive Gas | Corrosive gas prohibited | |
| Environment | Pollution Degree 2, for Indoor use | |
| Pressure resistance (Altitude) | 800 to 1114hPa (Altitude of 2000m or lower) | |
| Vibration resistance | 5 to 9Hz Single amplitude 3.5mm<br>9 to 150Hz Fixed acceleration 9.8m/s$^2$<br>X, Y, Z each direction 10 times (100 minutes)<br>(JIS B 3502, IEC61131-2 compliant) | |

## 4-6 Installation

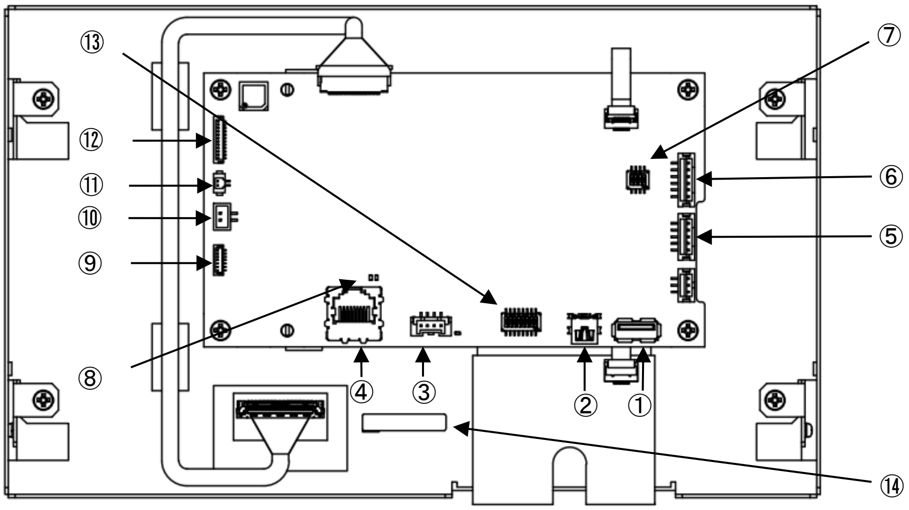
| Items | Specification | |
|---|---|---|
| | EM8-W310A7-0024-207 | EMG8-W310A7-0024-207 |
| Grounding | Functional grounding　: D type ground | |
| Structure | Open frame | |
| Cooling | Natural cooling | |
| Weight | App. 770g | App. 780g |
| External Dimensions | 244(W) x 147(H) x 32.4(D) mm | 244(W) x 147(H) x 32.7(D) mm<br>(Excluding touch pane tail protrusions) |
| Outline diagram | SM3-002153-10 | SM3-002328-10 |

## 4-7 Name of Parts

- ■ Backside: EM8-W310A7-0024-207

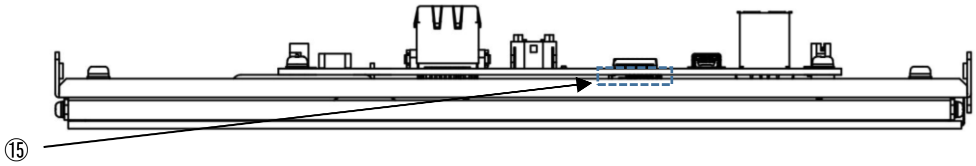


- ■ Backside: EMG8-W310A7-0024-207

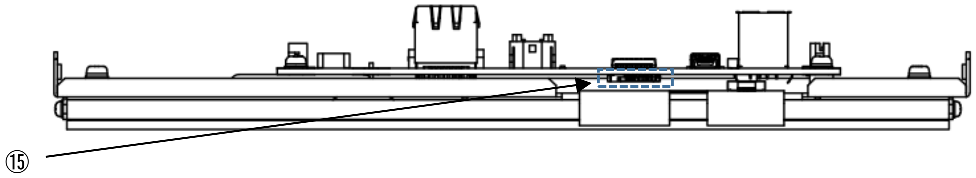


① USB Host Interface
② USB Device Interface
③ Power Input Interface
④ Ethernet (LAN)
⑤ Serial Port (SIO1)
⑥ Serial Port (SIO2)
⑦ SIO2 Setting Switch
⑧ LAN Status LED
⑨ SPI/PWM Audio Interface
⑩ Battery Input 2
⑪ Battery Input 1
⑫ DIO Interface
⑬ Shipping Setting Switch
⑭ Product Label

■ Bottom side: EM8-W310A7-0024-207



■ Bottom side: EMG8-W310A7-0024-207



⑮ microSD Card Slot

## 4-8 External Interface

### 4-8-1 microSD Card Slot

Connectors: microSD card slot (Push-in/out method)

Corresponding media: microSD/SDHC memory card

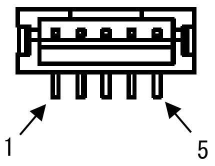
Maximum capacity: 32GB

### 4-8-2 Serial Interface（SIO1/SIO2）

(1) Serial port (SIO1): RS232C

Connectors: Nylon connectors

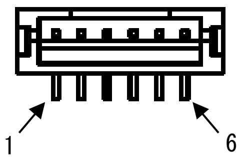
Model: Equivalent to B5B-PH-SM4-TB (by JST)

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | RXD |  |
| 2 | TXD | |
| 3 | GND | |
| 4 | RTS | |
| 5 | CTS | |

(2) Serial port (SIO2): RS422/485

Connectors: Nylon connectors

Model: Equivalent to B6B-PH-SM4-TB (by JST)

| PIN No | Signal | | Schematic Diagram |
|---|---|---|---|
| | RS422 | RS485 | |
| 1 | TX+ | DATA+ |  |
| 2 | TX- | DATA- | |
| 3 | GND | GND | |
| 4 | RX+ | (DATA+) *1 | |
| 5 | RX- | (DATA-) *2 | |
| 6 | GND | GND | |

*1 Connected to pin 1 inside the product.

*2 Connected to pin 2 inside the product.

RS422/485 can be set with the SIO 2 setting switch.

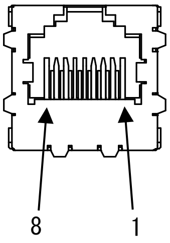
Default setting at shipment of EM8 is “RS485 Terminal resistor enabled”.

| PIN No | RS422 | RS485 | Contents |
|---|---|---|---|
| 1 | ON/OFF | | ON: Terminal resistor 120Ω enables<br>OFF: Terminal resistor disabled |
| 2 | OFF | ON | RS422/485 Setting |
| 3 | OFF | ON | |
| 4 | OFF | ON | |

### 4-8-3 Ethernet

Port: Ethernet 10BASE-T/100BASE-TX

Connectors: RJ-45

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | TX+ |  |
| 2 | TX- | |
| 3 | RX+ | |
| 4 | NC [*1] | |
| 5 | NC [*1] | |
| 6 | RX- | |
| 7 | NC [*1] | |
| 8 | NC [*1] | |

*1 NC stands for ‘not connected’.

Status LED

GREEN: LINK/ACT

YELLOW: SPEED

* Status LED is located on the board.

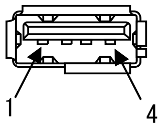
Supporting cable: Above category 5

### 4-8-4 USB Host Interface

Port: USB2.0

Connectors: Type-A Connectors

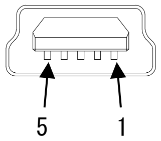
Maximum supply current: 0.5A

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | USB_VCC |  |
| 2 | D- | |
| 3 | D+ | |
| 4 | GND | |

### 4-8-5 USB Device Interface

Port: USB2.0

Connectors: Type-B Mini Connectors

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | USB_VCC |  |
| 2 | D- | |
| 3 | D+ | |
| 4 | NC [*1] | |
| 5 | GND | |

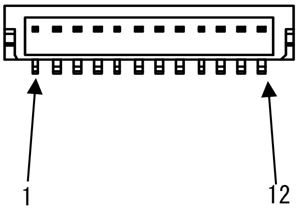
* NC stands for ‘not connected.’

### 4-8-6 DIO Interface

Port: DIO

Connectors: Nylon connectors

Model: Equivalent to BM12B-SRSS-TBT (by JST)

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | DIN1 |  |
| 2 | DIN2 | |
| 3 | DIN3 | |
| 4 | DIN4 | |
| 5 | GND | |
| 6 | GND | |
| 7 | DO_COM+ | |
| 8 | DOUT1 | |
| 9 | DOUT2 | |
| 10 | DOUT3 | |
| 11 | DOUT4 | |
| 12 | DO_COM-（GND） | |

◇DIN Specification

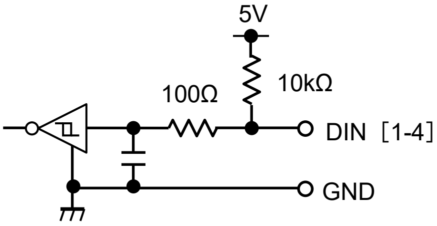
Input specification: non-isolated TTL Schmitt Trigger input

Input points: 4

Input voltage: +5VDC

Input resistance: Pull-up 10kΩ

Input circuit:



◇DOUT Specification

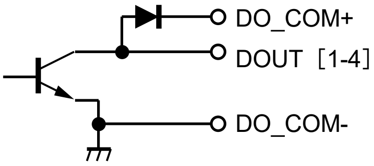
Output specification: non-isolated open connector output

Output points: 4

Output voltage: Maximum +5VDC

Output current: Maximum 50mA (per point)

Output circuit:



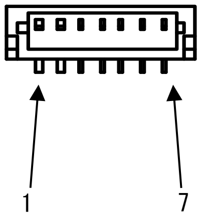
DO_COM- is connected to GND inside.

### 4-8-7 SPI/PWM Audio Interface

Port: SPI/PWM audio

Connectors: Nylon Connectors

Model: Equivalent to BM07B-SRSS-TBT (by JST)

| PIN No | Signal | | Schematic Diagram |
|---|---|---|---|
| | SPI | PWM audio | |
| 1 | CLK | - |  |
| 2 | GND | GND | |
| 3 | CS | - | |
| 4 | MISO | - | |
| 5 | MOSI | MQS_RIGHT | |
| 6 | GND | GND | |
| 7 | 5V OUT | 5V OUT | |

* SPI and PWM audio cannot be used at the same time.

◇SPI specification

In/Output signal level: Non-isolated LVTTL (3.3V)

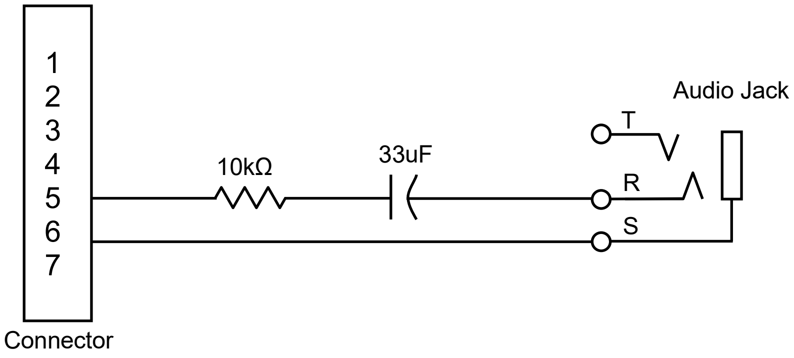
◇PWM audio specification

Audio output using MQS (Medium Quality Sound) function of the CPU.

Only RIGHT(1CH) can be used for output.

Amplifier is not built in.

Please refer to below diagram for how to connect the amplifier and/or speaker.

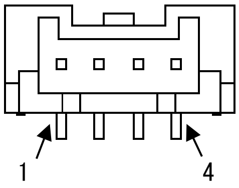


### 4-8-8 Power Connector

Port: 24VDC IN

Connectors: Nylon Connectors

Model: Equivalent to BM04B-PASS-1-TFT (by JST)

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | GND |  |
| 2 | 24V DC | |
| 3 | (24V DC) *1 | |
| 4 | (GND) *2 | |

*1 Connected to pin 2 inside EM8.

*2 Connected to pin 1 inside EM8.

## 4-8-9 Battery Interface

There are two interface connectors for the battery. When both are connected, the one with the higher voltage will take precedence.

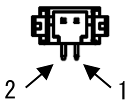
Use the primary battery and with nominal voltage of 3VDC.

Do not apply voltage higher than 3.6VDC. Backup current is TYP. 60μA.

(1) Battery Interface 1

Connectors: Nylon Connectors

Model: Equivalent to DF13C-2P-1.25V (21) (by Hirose Electric)

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | + |  |
| 2 | - | |

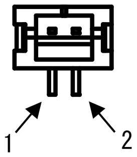
* Complying battery: CR2032WK11 [capacity 220mA / h] (by Maxell)

* Batteries other than the above complying battery can be used if it is a primary battery with nominal voltage of 3VDC.

(2) Battery Interface 2

Connectors: Nylon Connectors

Model: Equivalent to B2B-PH-SM4-TB (by JST)

| PIN No | Signal | Schematic Diagram |
|---|---|---|
| 1 | + |  |
| 2 | - | |

* Complying battery: CR-2/3AZC22P [capacity 1,600mA / h] (by Panasonic)
CR17450 A WK 41 [capacity 2,500mA / h] (by Maxell)
CR17450 A 2WK 35 [capacity 5,000mA / h] (by Maxell)
CR17335 A WK 11 [capacity 1,650mA / h] (by Maxell)

* Batteries other than the above complying battery can be used if it is a primary battery with nominal voltage of 3VDC.

## 4-8-10 Default Switch Setting at Shipment

Below is the switch setting at factory shipment. Changing the switch setting by the customer is prohibited.

EM8 setting at shipment.

Shipment switch setting

| № | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Setting | OFF | ON | ON | OFF | ON | OFF | OFF | ON |

## 4-9 Linux OS

This describes the Linux OS embedded in the EM8.

For details, please refer to the EM series software development manual.

We can provide the software development environment (DVD).

Please contact us via e-mail for the DVD.

### 4-9-1 Application Software Development Environment

Qt application is recommended.

### 4-9-2 Embedded Application

Below is the specification of Linux embedded in the EM8.

| Items | | Specification |
|---|---|---|
| Glibc version | | 2.23 |
| On-board Software | Qt5.7.1 | GUI tool kit |
| | PCMan File Manager | File manager |
| | GTK+ | GIMP Toolkit library |
| | bash | Bash shell |
| | busybox | Program with Linux basic commands gathered in one file. |
| | udhcpc | DHCP client |
| | gdbserver | Gdb debugger that can connect from host |
| | ntpclient | Time synchronization by NTP |
| | Lighttpd | Web server (complying to php and cgi) |
| | x11 | X Window system |
| | x11vnc | VNC server/client |
| | LXTerminal | Terminal emulator |
| | ALSA | Audio mixer |
| | emg-setting | EMG setting tool |
| | florence | Screen keyboard |
| | leafpad | Text editor |
| | openssh | SSH server |
| | libmodbus | Modbus library |
| | FZLanTingHei-R-GB18030 | RICHO (GB18030) font |

* Please refer to “EM Series Software Development Manual” for details.

### 4-9-3 IS-APP

Our IS-APP (application version of InfoSOSA) can be embedded to the EM8 as HMI application.

Please purchase the “Development Kit (SWDK-101)” when using the IS-APP.

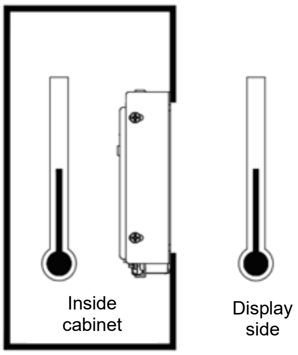
For details, please refer to “IS-APP Start-Up Guide.”

# 5. Installation

## 5-1 Installing Condition

- When mounting to panels, be sure to have enough room for inserting and removing of microSD cards and cables.
- Please ensure ventilation and consider the specification temperature between EM8 and the structures and parts when installing the EM8.
- Be sure to use at ambient temperature of -10 to 60℃, ambient humidity 10 to 90%RH (wet-bulb temperature 39℃ or less).

  (Ambient operating temperature indicates both the display side and inside of cabinet where the EM8 will be installed.)

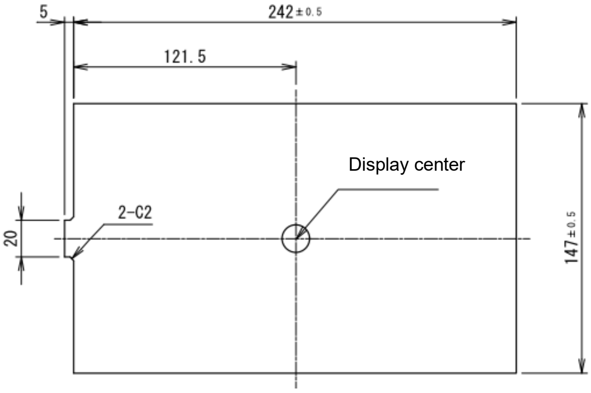

Inside
cabinet
Display
side

## 5-2 Panel Opening Example

Below is the panel opening dimension example for when applying sheets and etc. to the surface by opening he touch screen surface.

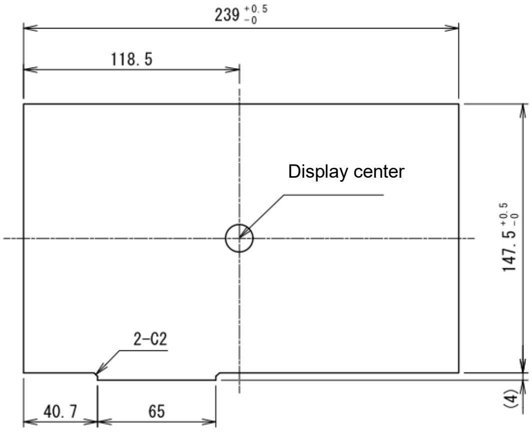
*Front panel view (board thickness t=1.6mm or less)

■ EM8-W310A7-0024-207


5
242±0.5
121.5
Display center
2-C2
20
147±0.5

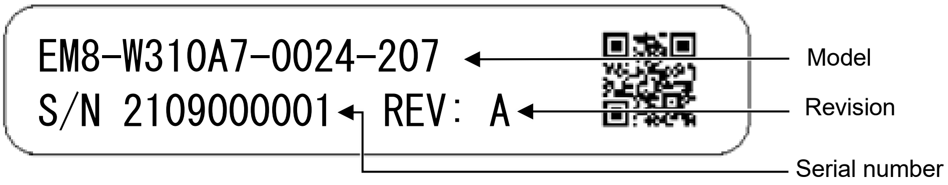
UNIT: mm

■ EMG8-W310A7-0024-207


239 +0.5 -0
118.5
Display center
147.5 +0.5 -0
2-C2
40.7
65
(4)

UNIT: mm

# 6. Product Label


EM8-W310A7-0024-207
S/N 2109000001
REV: A
Model
Revision
Serial number

Above is an example image of the product label.

The following information will be noted on the label of the actual product.

- Model : Model of the product purchased
- Serial number : 10 digit control number
- Revision : Alphabet (1 character from A to Z) according to the latest revision.

# 7. Complying Standards

## 7-1 RoHS Directives

Compliant to EU RoHS Directives.

# 8. List of Options

- Development Kit

| Model | Specification |
|---|---|
| SWDK-101 | 24VDC Power unit<br>InfoSOSA Development Kit Data Download Guide *1 |

*1 Needed when using InfoSOSA (IS-APP) application

- Serial Communication Cable

| Model | Specification |
|---|---|
| ISCBL-S02-001 | RS232C Cable<br>Nylon Connectors 5P-D sub (2000mm） |
| ISCBL-S03-001 | RS232C Cable<br>Nylon Connectors 5P-Cut end (500mm) |
| SWHC-T2-001 | RS422 Cable<br>Nylon Connectors 6P- Cut end (500mm) |
| SWHC-T3-001 | RS485 Cable<br>Nylon Connectors 6P-Cut end (500mm) |

- Power Supply Cable

| Model | Specification |
|---|---|
| SWHC-P1-001 | Power supply cable<br>Nylon Connectors 4P-Round terminal (500mm) |

# 9. Warranty

## 9-1 Warranty Period

The warranty period is limited to12 months (1 year) from the date of shipment. Warranty for any repair needed to the same repaired part of the same product is three months. Any defects that occur upon normal use under conditions specified herein will be repaired (factory repair) free of charge.

Any defected parts under proper use will be examined by the supplier and replaced by the new parts if the defect is considered to be caused by the supplier.

The replacement is subject to be included in the next lot.

## 9-2 Warranty Exceptions

You will be liable for all repair fees even within the warranty period for any conditions listed below:

(1) Any malfunctions, defects, and/or damages that occurred during transport, transfer, or mishandling by the user after delivery.

(2) Any malfunctions, defects, and/or damages caused by natural or man-made disaster.

(3) Any malfunctions and damages caused by static electricity.

(4) If the product is used under any condition, in any environment, or by any method other than those specified in the specifications, catalogs, manuals, notes, and/or other documents.

(5) Any replacement of consumables.

(6) Any malfunctions, defects, and/or damages caused by associated equipment and/or usage of inappropriate consumables and media.

(7) If the product is repaired, remodeled, modified, or disassembled by a party other than DMC Co., Ltd

(8) If the product cannot be identified by a serial number.

(9) Any malfunctions, defects, and/or damages that are to have been caused on your behalf.

This warranty covers only the product itself. Any damages, on-site repairs and replacement driven by the failure of the product will be decided upon discussion by both parties as necessary.

This product is structurally not repairable. All damaged parts are subject for replacement and freight will be charged.

# 10. Product Discontinuance

In the event of production discontinuance, an announcement will be made six months prior to the last possible order reception date.

## 11. Others

If you have comments or questions, please feel free to contact us.

North South America area
✉ technical-global@dush.co.jp

Asia Pacific area
✉ technical-global-asia@dush.co.jp

Europe, Middle East, Africa area
✉ technical-global-eu@dush.co.jp

FAQ
🌐 **www.dush.co.jp/english/support/faq/**

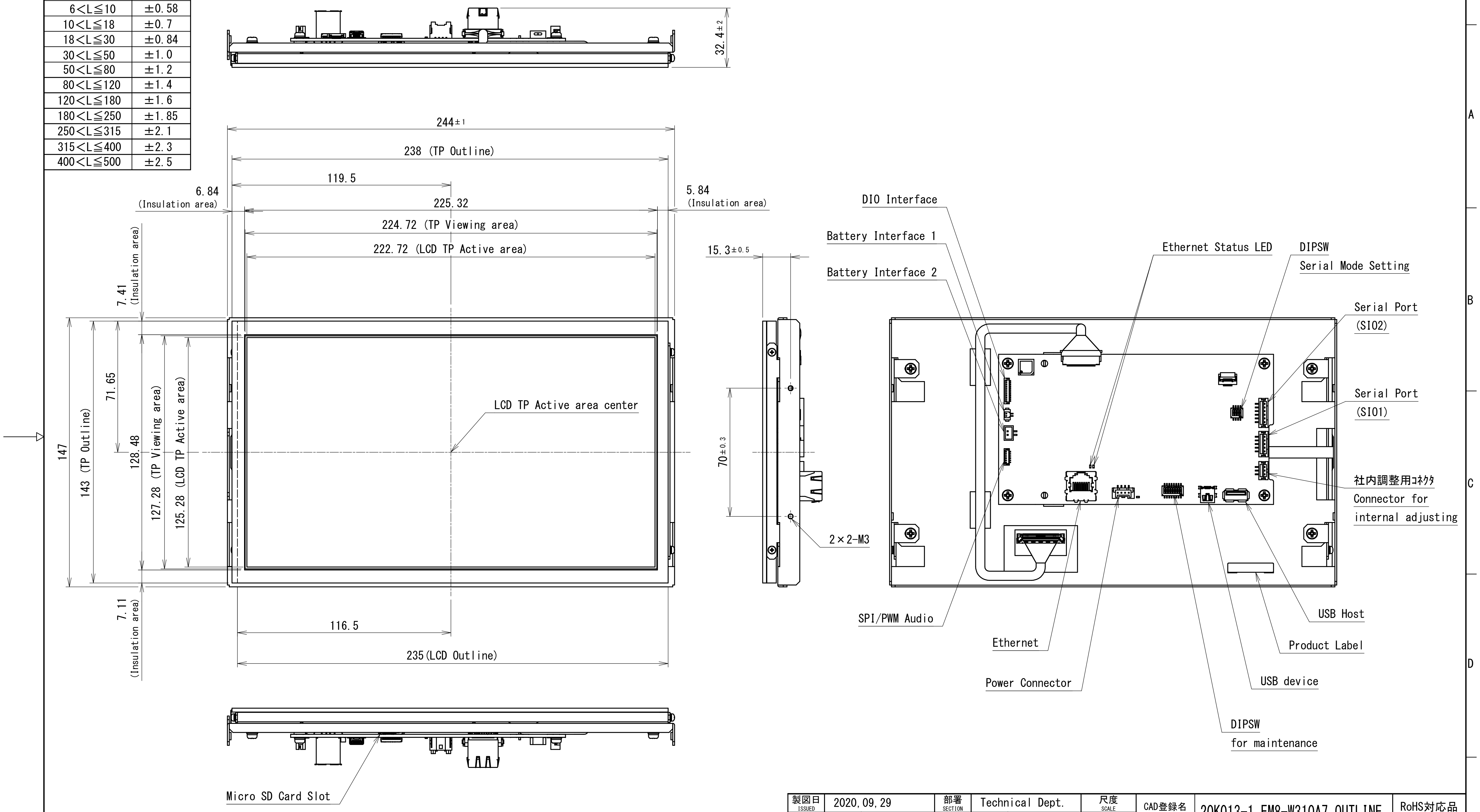
---

5th Edition November 2023
DMC Co., Ltd.
Office hours: 9:00 - 17:00 weekdays
(except Saturdays, Sundays, national holidays, and year-end and New Year holidays)
URL: https: //www.dush.co.jp/english/

This product and document are protected by the copyright law. Photocopying, duplicating, reproducing, and modifying of this product or document in part or by whole is prohibited.
Copyright(C) 2023 DMC Co., Ltd. All Rights Reserved

| 寸法許容差 TOLERANCE | |
|---|---|
| 呼び寸法 Nominal Dimensions | |
| L≦3 | ±0.4 |
| 3<L≦6 | ±0.48 |
| 6<L≦10 | ±0.58 |
| 10<L≦18 | ±0.7 |
| 18<L≦30 | ±0.84 |
| 30<L≦50 | ±1.0 |
| 50<L≦80 | ±1.2 |
| 80<L≦120 | ±1.4 |
| 120<L≦180 | ±1.6 |
| 180<L≦250 | ±1.85 |
| 250<L≦315 | ±2.1 |
| 315<L≦400 | ±2.3 |
| 400<L≦500 | ±2.5 |

| SYM | 改訂日 DATE | 改 訂 内 容 DESCRIPTION | ページ PAGE | 担当 DESIGNED |
|---|---|---|---|---|
| | 2020.09.29 | 新規図面登録 | — | S.Takada |


32.4±2
244±1
238 (TP Outline)
119.5
6.84 (Insulation area)
225.32
5.84 (Insulation area)
224.72 (TP Viewing area)
222.72 (LCD TP Active area)
15.3±0.5
7.41 (Insulation area)
71.65
147
143 (TP Outline)
128.48
127.28 (TP Viewing area)
125.28 (LCD TP Active area)
LCD TP Active area center
70±0.3
2×2-M3
7.11 (Insulation area)
116.5
235(LCD Outline)
Micro SD Card Slot
DIO Interface
Battery Interface 1
Battery Interface 2
Ethernet Status LED
DIPSW
Serial Mode Setting
Serial Port
(SIO2)
Serial Port
(SIO1)
社内調整用ｺﾈｸﾀ
Connector for
internal adjusting
SPI/PWM Audio
Ethernet
Power Connector
DIPSW
for maintenance
USB device
Product Label
USB Host

NOTES

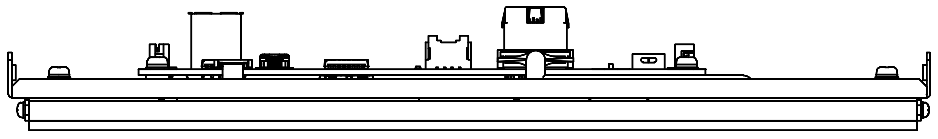
1. 指示なき寸法公差は一般寸法公差とする。
   Tolerance shall be of general dimensional tolerance unless specified otherwise.
2. 社内調整用ｺﾈｸﾀは、お客様での使用はございません。
   Connector for internal adjustment; cannot be used by customer.

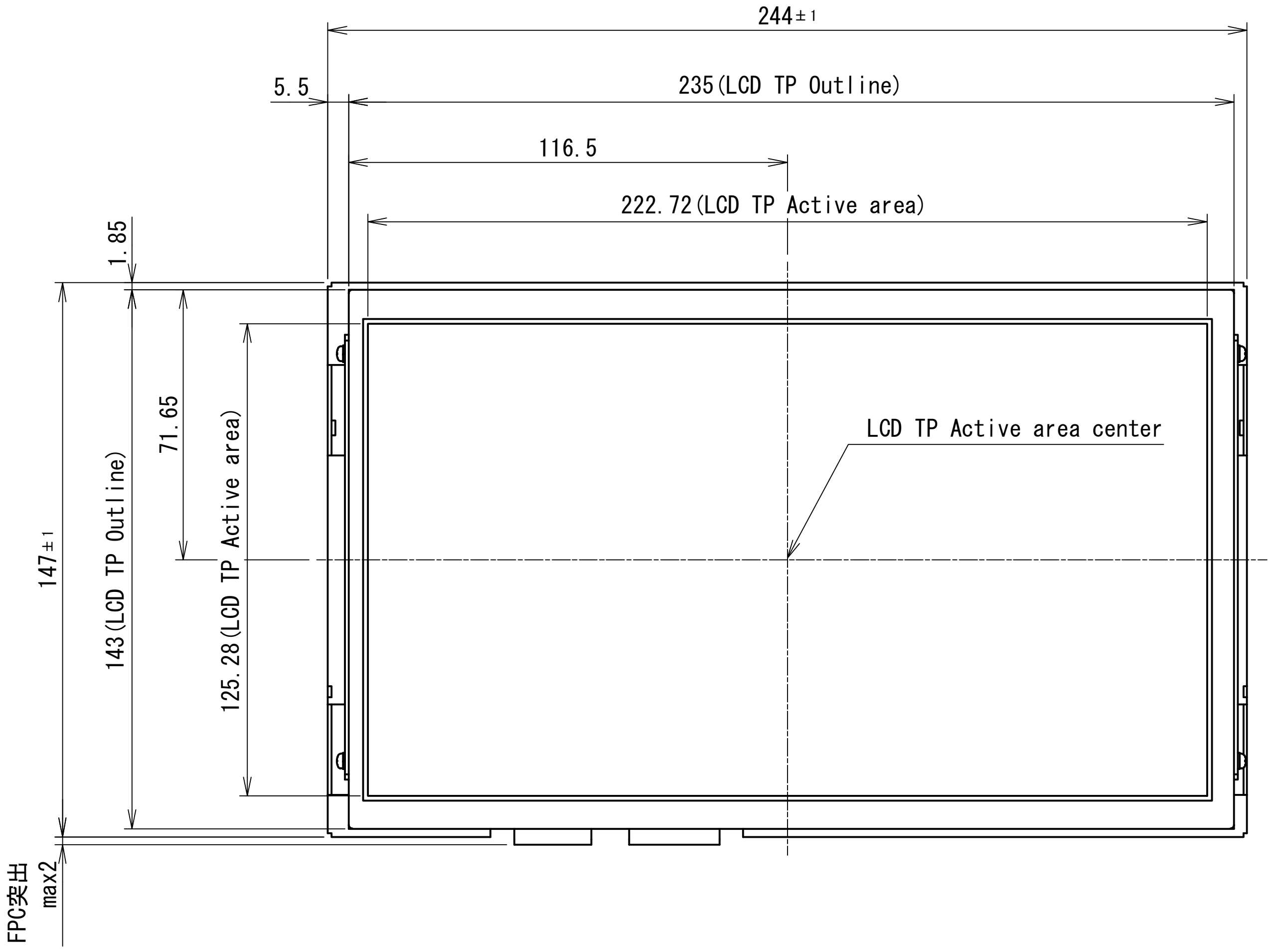
| | | | |
|---|---|---|---|
| 製図日 ISSUED | 2020.09.29 | 部署 SECTION | Technical Dept. |
| 承認 APPROVED | 検図 CHECKED | 製図 DRAWN | 設計 DESIGNED |
| T.Okada | S.Yoshimoto | S.Takada | S.Takada |
| DMC Co., Ltd. | | | A3 |

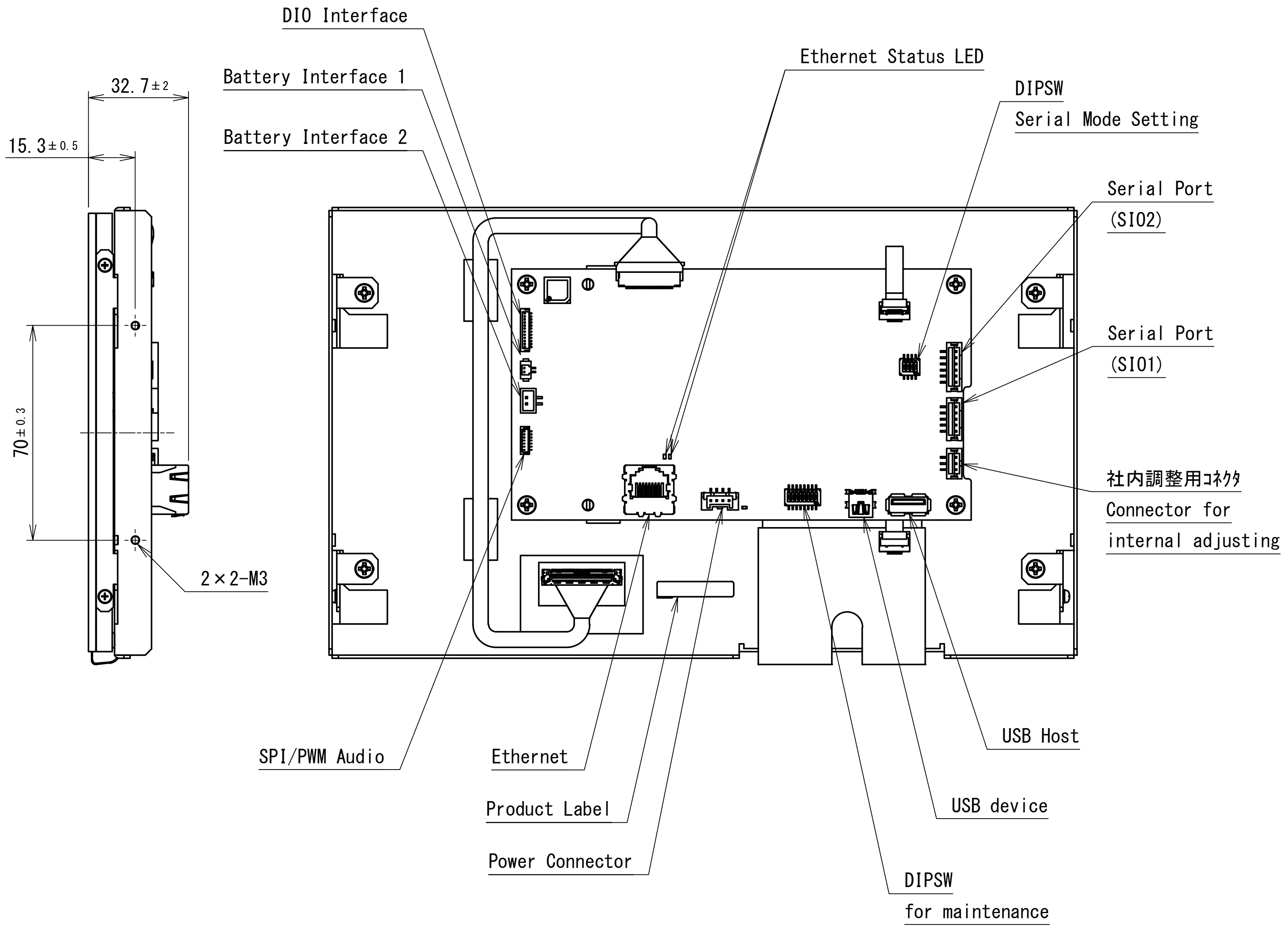
| | | | |
|---|---|---|---|
| 尺度 SCALE | 1:2 | CAD登録名 CAD FILE NAME | 20K013-1_EM8-W310A7_OUTLINE |
| | | RoHS対応品 RoHS compliant | |
| 単位 UNIT | mm | 製品名 MODEL | EM8-W310A7-0024-XX7 |
| | | 図名 TITLE | OUTLINE |
| | | ﾍﾟｰｼﾞ PAGE | 1 /1 |
| | | 図番 DWG No. | SM3-002153-10 |

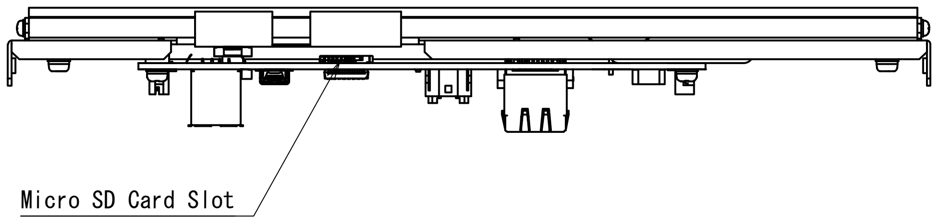
| 寸法公差表 （公差等級 IT15） | |
|---|---|
| 呼び寸法 Nominal Dimensions | |
| L≦3 | ±0.4 |
| 3＜L≦6 | ±0.48 |
| 6＜L≦10 | ±0.58 |
| 10＜L≦18 | ±0.7 |
| 18＜L≦30 | ±0.84 |
| 30＜L≦50 | ±1.0 |
| 50＜L≦80 | ±1.2 |
| 80＜L≦120 | ±1.4 |
| 120＜L≦180 | ±1.6 |
| 180＜L≦250 | ±1.85 |
| 250＜L≦315 | ±2.1 |
| 315＜L≦400 | ±2.3 |
| 400＜L≦500 | ±2.5 |

| SYM | 改訂日 DATE | 改 訂 内 容 DESCRIPTION | ページ PAGE | 担当 DESIGNED |
|---|---|---|---|---|
| | 2023.01.25 | 新規図面登録 | — | M.Mitani |




244±1
5.5
235(LCD TP Outline)
116.5
222.72(LCD TP Active area)
1.85
71.65
147±1
143(LCD TP Outline)
125.28(LCD TP Active area)
LCD TP Active area center
FPC突出 max2


32.7±2
15.3±0.5
70±0.3
2×2-M3
DIO Interface
Battery Interface 1
Battery Interface 2
Ethernet Status LED
DIPSW
Serial Mode Setting
Serial Port
(SIO2)
Serial Port
(SIO1)
社内調整用ｺﾈｸﾀ
Connector for
internal adjusting
USB Host
USB device
DIPSW
for maintenance
SPI/PWM Audio
Ethernet
Product Label
Power Connector


Micro SD Card Slot

NOTES

1. 指示なき寸法公差は一般寸法公差とする。
   Tolerance shall be of general dimensional tolerance unless specified otherwise.
2. 社内調整用ｺﾈｸﾀは、お客様での使用はございません。
   Connector for internal adjustment: cannot be used by customer.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 製図日 ISSUED | 2023.01.25 | 部署 SECTION | Technical Dept. | 尺度 SCALE | CAD登録名 CAD FILE NAME | 22K003_OUTLINE_EMG8-W310A7 | RoHS対応品 RoHS compliant |
| 承 認 APPROVED | 検 図 CHECKED | 製 図 DRAWN | 設 計 DESIGNED | 1:2 | 製品名 MODEL | EMG8-W310A7-0024-XX7 | |
| T.Okada | S.Yoshimoto | M.Mitani | M.Mitani | 単 位 UNIT<br>mm | 図 名 TITLE | OUTLINE | ﾍﾟｰｼﾞ PAGE 1 /1 |
| DMC Co., Ltd. | | | A3 | | 図 番 DWG No. | SM3-002328-10 | |