

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(1/31)

Specifications

製品規格書

製品番号 Product number

HCEPM0C002A

※本製品はAirInput™ 面板用 専用操作ソフト対応品

This product is compatible with dedicated operation software for AirInput™ panel.

					ALPSALPINE CO.,LTD.			
					APPD. C7技 塚本 幸 23.11.29	CHKD. C7技 稲村 純 23.11.28	DSGD. C7技 23.11.28 小池	DOCUMENT NO. HCEPM0C002A_SPEC_S
SYMB	DATE	APPD	CHKD	DSGD				TITLE Specifications

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(2/31)

< 目 录 Index >

	<Page>		<Page>
改订履历 Revision history	3		
1 一般事项 General		9 包装规格 Packing specification	
1-1 适用范围 Coverage	4	9-1 梱包形態 Packing form	20
1-2 动作环境条件 Operating Condition	4	9-2 表示 Indication	20
1-3 非动作环境条件 Non-Operating Condition	4	10 信赖性试验 Reliability test	21
1-4 标准状态 Standard Condition	4	11 表示 Label	23
1-5 判定状态 Judgement Condition	4	12 保证期间及保管条件 Storage term and condition	23
1-6 定义 Definition	5	13 使用上的注意 Caution of using the product	
2 制品构成 Product composition		13-1 使用目的	24
2-1 制品构成 Product composition	6	13-2 取扱いおよび保存上の注意	25
2-2 控制基板实装连接器 Control board mounting connector	6	13-3 セット取り付け時の注意	26
3 机械性能 Mechanical performance		13-4 製品の取り扱い方法	27
3-1 面板部 Panel	7	Method of handling the product	
3-2 控制基板部 Control Board	7	14 专利相关注意点 Notes concerning patent	29
4 光学性能 Optical performance		15 特记事项 Remarks	29
4-1 可视区域 View area	7	16 AirInput™ 面板用 专用操作软件 Dedicated operation software for AirInput™ Panel	31
5 电气性能 Electrical performance			
5-1 电源电压 Power-supply voltage	8		
5-2 绝对最大额定值 Absolute maximum rating	8		
5-3 功耗电流 Consumption current	8		
6 检出性能 Detection performance			
6-1 位置精度 Accuracy	9		
6-2 坐标检出指数 Number of coordinate detection fingers	9		
7 通信规格 Communication specification			
7-1 概要 Outline	10		
7-2 输出数据 Output Data			
7-2-1 Digitizer Class	11		
7-2-2 Vendor Class	12		
7-2-3 Communication Device Class	13		
8 外观规格 Visual quality			
8-1 可视区域 View area	16		
8-2 黑框区域 Black frame area	17		
8-3 FPC判定基准 FPC criteria	18		
8-4 检查环境 Inspection environment	19		

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.1.0		(4/31)

1. 一般事項 General

1-1 适用范围 Coverage

本规格书适用于AirInput™ 面板15.6inch Wide XY Type。

本规格书为中英双语、有疑义的情况以中文记述优先。

This specification applies to AirInput™ panel 15.6inch Wide XY type.

Although this specification documents both Chinese and English, in case of doubt, the Chinese description has priority.

1-2 动作环境条件 Operating condition

项目 Item	规格 Specification
温度 Temperature	0 ~ 40 °C
湿度 Humidity	10 ~ 90 %RH (无结露 Non-condensation)

1-3 非动作环境条件 Non-Operating condition

项目 Item	规格 Specification
温度 Temperature	-20 ~ 60 °C
湿度 Humidity	10 ~ 90 %RH (无结露 Non-condensation)

1-4 标准状态(通常测定状态) Standard Condition (Normal measurement condition)

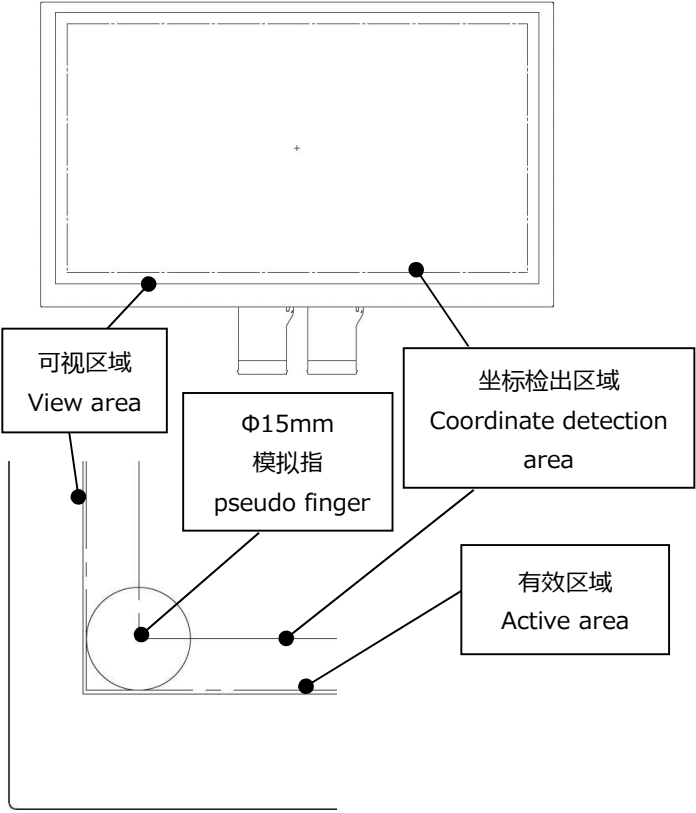
项目 Item	规格 Specification
温度 Temperature	5 ~ 35 °C
湿度 Humidity	45 ~ 85 %RH (无结露 Non-condensation)
气压 Atmospheric pressure	860 ~ 1060 hPa

1-5 判定状态(有疑义时的测定状态)

Judgement condition (Measurement condition when doubt arises)

项目 Item	规格 Specification
温度 Temperature	18 ~ 22 °C
湿度 Humidity	60 ~ 70 %RH (无结露 Non-condensation)
气压 Atmospheric pressure	860 ~ 1060 hPa

1-6 定义 Definition

项目 Item	定义 Definition
面板区域 Panel area	坐标检出区域为有效区域4角内接φ15mm的模拟指的中心点相连范围的内侧。(设计值：可视区域内 8mm) The coordinate detection area is the inside of the range connected to the midpoint of the pseudo finger of Φ15 mm inscribed in the four corners of the active area. (From the view area to the inside 8 mm (design value))  The diagram illustrates the layout of the panel area. It shows a large rectangle representing the panel area, with a smaller rectangle inside representing the view area. The view area is further divided into four quadrants by a horizontal and vertical line. In each quadrant, a circle representing a pseudo finger is shown. The coordinate detection area is defined as the region inside the view area, bounded by the centers of the pseudo fingers. The active area is the region inside the coordinate detection area. Labels with leader lines point to the view area, pseudo finger, coordinate detection area, and active area.
模拟指 pseudo finger	φ15mm 的金属制圆柱 metal cylinder
位置精度 Accuracy	X轴（X坐标）与Y轴（Y坐标）分别规定如下 X轴：长边方向 Y轴：短边方向 Specified by the X axis and the Y axis respectively. X-axis is the long side, Y-axis is the short side.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(6/31)

2. 制品构成 Product composition

2-1 制品构成 Product composition

构成 Composition	部品名称 Parts	厚度[mm] Thickness	材质 Material
面板部 Panel	玻璃盖板 Cover Glass	1.1	钠玻璃 Soda Glass
	传感器 Sensor	1.16	PET、亚克力系粘着剂、其他 PET,Acrylic adhesive,etc.
	FPC	-	聚酰亚胺、Cu、其他 Polyimide,Cu,etc.
控制基板部 Control Board	控制基板 Control Board	1.6	玻璃纤维基材,环氧树脂、其他 Glass fabric base,Epoxy resin,etc.

2-2 控制基板实装连接器Control board mounting connector

部品名称 Parts	型号/厂家 Parts Number/Maker
传感器连接器 Sensor Connector	FH52K-68S-0.5SH(05) / Hirose 或者其他相当品 or its equivalent
USB连接器 USB Connector	USB Micro Type-B

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(7/31)

3. 机械性能 Mechanical performance

3-1 面板部 Panel

项目 Item	规格 Specification
外形尺寸 Outline dimension	参照制品图 According to product drawing
可视区域 Viewing area	参照制品图 According to product drawing
重量 Weight	Typ. 400g

3-2 控制基板部 Control Board

项目 Item	规格 Specification
外形尺寸 Outline dimension	110mm x 100mm
重量 Weight	Typ. 50g

4. 光学性能 Optical performance

4-1 可视区域 View area

项目 Item	规格 Specification			备注 Note
透过率 Transmittance	Min.	Typ.	Max.	JIS K7361-1 source D65
	85%	-	-	
浊度 Haze	Min.	Typ.	Max.	JIS K7136 source D65
	-	-	3%	

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(8/31)

5. 电气性能 Electrical performance

5-1 电源电压 Power-supply voltage

项目 Item	规格 Specification			单位 Unit
	MIN.	TYP.	MAX	
VDD	4.75	5.0	5.25	V

5-2 绝对最大额定值 Absolute maximum rating

项目 Item	记号 Symbol	规格 Specification		单位 Unit
		MIN.	MAX	
电源电压	VDD VDDIO	-0.3	6.0	V
输入电压	V _{AIN}	-0.3	VDD+0.3	V
	V _{DIN}			

5-3 功耗电流 Consumption current

项目 Item	记号 Symbol	规格 Specification			单位 Unit
		MIN.	TYP.	MAX	
Active	I _{DD}	-	120	150	mA

6. 检出性能 Detection performance

6-1 位置精度 Accuracy

项目 Item	规格 Specification
接触 touch	X:±5mm Y: ±5mm
非接触 touchless 0< , ≤30mm	X: ±10mm Y: ±10mm

注1：除坐标检出区域的外周部10mm范围
注2：测定用模拟指径 Φ15mm

Note1 : The range of 10 mm outer circumference is excluded.
Note2 : pseudo finger size Φ15mm

6-2 坐标检出指数 Number of coordinate detection fingers

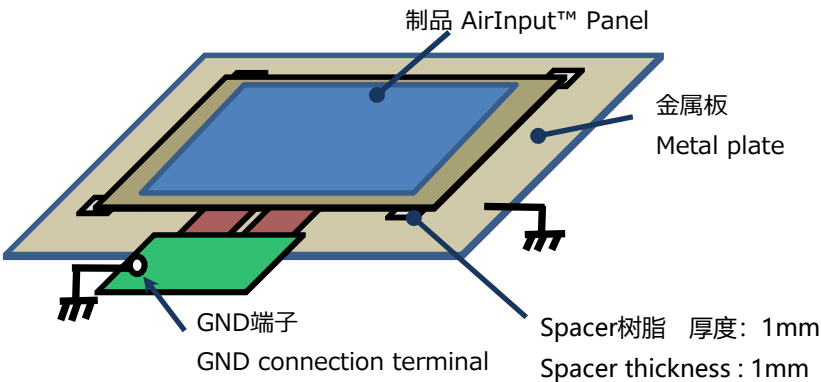
项目 Item	规格 Specification
接触 touch	1 指 1 finger
非接触 touchless 0< , ≤30mm	1 指 1 finger

6-3 标准测定条件 Standard measurement conditions

无外部noise状态下实施试验
Test without foreign noise.

测定环境 : 1-4 标准状态、1-5 判定状态
Measurement environment : According to 1-4 standard condition,1-5 judgment condition

设置状态
Installation condition



※注意 Notes
•AirInput™面板与LCD组合使用的情况、AirInput™面板的背面与LCD的正面需保持1.0mm以上的距离。

If you use in conjunction with AirInput™ Panel and a LCD,
please keep a distance more than 1.0mm between the back of the AirInput™ Panel and the LCD top surface.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(10/31)

7. 通信规格 Communication specification

7-1. 概要 Outline

通信方式 : USB

Communication method : USB

设备类别 : USB HID (Digitizer + Vendor Class) + CDC(Communication Device Class)

※Microsoft/USBの认证未取得

Device Class : USB HID (Digitizer + Vendor Class) +CDC (Communication Device Class)

※Not certified by USB/Microsoft.

规格 : USB 2.0

Standard : USB 2.0

传送速度 : High-Speed USB (480Mbps)

Speed mode: High-Speed USB (480Mbps)

USB Vendor-ID : 044E

USB Product-ID : 144C

数据更新间隔 : 100msec (max.)

Data refresh span : 100msec(max.)

动作确认完了的OS : Windows 10

Operation confirmed OS : Windows 10

版本 : 20H2-OS build 19042.1288

Version : 20H2-OS build 19042.1288

※上記为ALPSALPINE动作确认完了的OS、而非动作保证。

利用动作确认完了的OS也会由于客户的使用环境而出现不能正常动作的情况。

The above is an OS that has been confirmed to operate by ALPSALPINE,
and we do not guarantee operation.

In addition, even if you use an OS that has already confirmed our operation,
it may not work properly depending on the customer's usage environment.

引脚配置 Pin assignment

No.	Signal
1	VBUS(5V)
2	D-
3	D+
4	NC
5	GND

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(11/31)

7-2. 输出数据 Output Data

7-2-1. Digitizer Class

输出数据 Output data (AirInput™ Panel⇒Windows)

项目 Item	数据长度 Length	备注 Note
Report ID	1 byte	1 Fix
Tap Switch	1 byte	Tap:1, Others:0
Contact ID	1 byte	1 Fix
X坐标 X-Coordinate	2 byte	0~4095
Y坐标 Y-Coordinate	2 byte	0~4095
Report count	1 byte	1 Fix

※评价APP显示为OS转换后的坐标值
In Sample App., Client coordination after OS conversion.
※评价APP显示为OS转换后的坐标值
In Sample App., Client coordination after OS conversion.

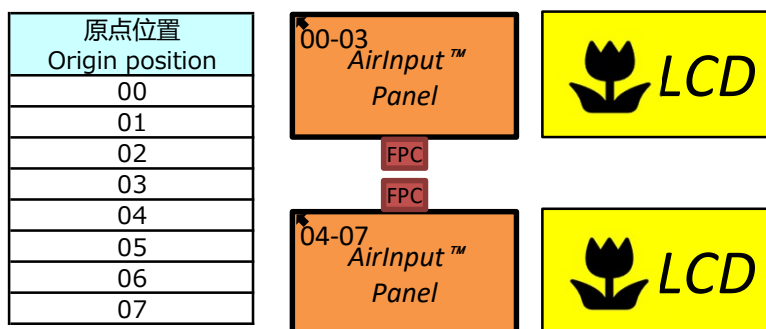
データフォーマット(リトルエンディアン) Data Format (Little Endian)

项目 Item	Report Count	Y坐标 Y-Coordinate	X坐标 X-Coordinate	ContactID	TipSwitch	ReportID
Bit	63 56	55 40	39 24	23 16	15 8	7 0
Byte	7	6 5	4 3	2	1	0
Field		MSB LSB	MSB LSB			

坐标原点 Origin of Coordinate

按原点设定指令设定 (参照: Communication Device Class)

Set by the Origin setting command. (Refer to Communication Device Class)



Digitizer Class Coordinate Origin Position

※在 Windows 显示设置中屏幕方向旋转时, 原点会在 Windows 端更改。

Origin change was processed in Windows, when change the Display orientation in Windows setting.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(12/31)

7-2-2. Vendor Class

输出数据 Output data (AirInput™ Panel⇒Windows)

项目 Item	数据长度 Length	备注 Note
Report ID	1 byte	3 Fix
X坐标 X-Coordinate	2 byte	0~4095
Y坐标 Y-Coordinate	2 byte	0~4095
Z方向 Z(Proximity)	2 byte	静电变化量检出值 Capacitance Detect Value
检出状态 Detect Status	1 byte	无检出 No Detection : 0x00 接近 Proximity : 0x01 选择 Selection : 0x03 决定 Decision : 0x05 接触 Touch : 0x07
状态 Status	1 byte	bit 1: ON 0: OFF 0 MCU Error 1 COM Error 2 Sensor Error 3 Undefined 4 Palm Detection 5 Undefined 6 Undefined 7 Undefined
备用 Reserved	2 byte	Undefined

※检出状态下30秒同一状态无变化的情况，请校正使Z轴数值为0.

If the detection status does not change from the same status for 30 seconds,
perform calibration so that Z becomes 0.

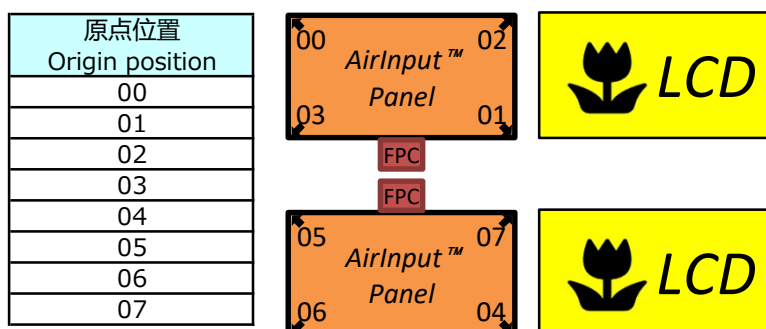
数据标准格式 Data Format (Little Endian)

项目 Item	备用 Reserved	状态 Status	检出状态 Detect Status	Z方向 Z(Proximity)	X坐标 Y-Coordinate	X座標 X-Coordinate	Report ID
Bit	87 72	71 64	63 56	55 40	39 24	23 8	7 0
Byte	10 9	8	7	6 5	4 3	2 1	0
Field	Undefined	Status	Detect Status	MSB LSB	MSB LSB	MSB LSB	

坐标原点 Origin of Coordinate

按原点设定指令设定 (参照: Communication Device Class)

Set by the Origin setting command. (Refer to Communication Device Class)



Vendor Class Coordinate Origin Position

※屏幕方向变更时，Vendor Report的原点必须根据原点设定指令进行变更。

Origin in Vendor Class should set by command, when change the display orientation.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(13/31)

7-2-3. Communication Device Class

输入数据・标准格式 Input Data Format (Host ⇒ AirInput™ Panel)

项目 Item	数据长度 Length	备注 Note
STX(0x02)	1 byte	表示数据开头 Data Header
Command	2 byte	维护指令 Maintenance Command
Parameters	m byte	根据指令的种类 (备用) Depends on Command (Reserved)
check sum	2 byte	STX、command、Parameters的总和, 低位1byte+2的反码 Complement of lower 1byte that sum of STX, Command, Parameter
0x0D,0x0A	2 byte	改行指令※任意 CR-Code (optional)

通信 : Little Endian COM : Little Endian

输出数据・标准格式 Output Data Format (AirInput™ Panel ⇒ Host)

项目 Item	数据长度 Length	备注 Note
STX(0x02)	1 byte	表示数据开头 Data Header
Command	2 byte	处理指令 AirInput™ Panel processed command
Result	1 byte	'1': 成功 Success、'0': 失败 False
Data	m byte	根据指令的种类 Depends on Command
check sum	2 byte	STX、command、Parameters的总和, 低位1byte+2的反码 Complement of lower 1byte that sum of STX, Command, Result, Data

通信 : Little Endian COM : Little Endian

コマンドリスト(ASCIIコード形式) Command List (ASCII)

指令 Command	Host ⇒ AirInput™ Panel	AirInput™ Panel ⇒ Host	Parameter Size
手动复位 Manual Reset	STX'019D'	- (无应答) (No response)	
FW-Version	STX'029C'	STX'02ZYYYYYYYYYYYXX'	
Application-Version	STX'0A8D'	STX'0AZPXX'	12 byte
Digitizer Report Start	STX'039B'	STX'03ZXX'	
Digitizer Report Stop	STX'049A'	STX'04ZXX'	
原点设定 (Origin setting)	STX'05PPXX'	STX'05ZXX'	2 byte
检出状态阈值设定 Detect Status threshold setting	STX'06PPPP...XX'	STX'06ZXX'	32 byte
原点・检出状态设定确认 Origin/Detect Status threshold confirm	STX'0797'	STX'07ZPPPP...XX'	82 byte
序列号读取 Readout the Serial Number	STX'0995'	'STX'09ZPXX'	13 byte
驱动频率设定 Drive frequency setting	STX'14PXX'	STX'14ZXX'	2 byte
读取驱动频率设定 Readout of the drive frequency setting	STX'1598'	STX'15ZPXX'	2 byte
Note. XX:Check Sum , Y:FW-Version , Z:'1': 成功 Success/'0': 失败 False , P:Parameter FW-Version : 5AB-01846B14 Application-Version : 5AB-01847B14			

留意事项 Remarks

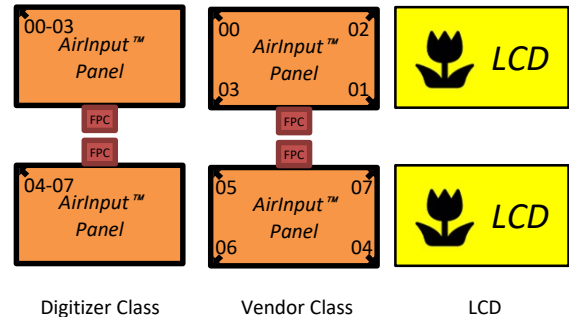
- 收到指令后1sec以内应答。
Respond within 1 sec after receiving the command.
- 当收到手动复位指令时, 产品将被复位, 无法返回输出数据。
Manual reset command, AirInput™ Panel will be reset and any data cannot be returned.
- 接收到停止指令1分钟后, HID的动作会再开。Resumes operation as HID 1 minute after receiving the stop command.
- Command、Parameter限定为'0'(0x30)~'9'(0x39)、'A'(0x41)~'F'(0x46), (限定为十六进制字符)。
Only commands and parameters are '0' (0x30) to '9' (0x39) and 'A' (0x41) to 'F' (0x46).
(limited to hexadecimal characters)

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(14/31)

原点设定 Origin Settings

※设置存储在非易失性存储器中 Settings are saved in non-volatile memory

原点位置 Origin position	Host ⇒ AirInput™ Panel
00	STX'050039'
01	STX'050138'
02	STX'050237'
03	STX'050336'
04	STX'050435'
05	STX'050534'
06	STX'050633'
07	STX'050732'



检出状态设定 Detect Status Settings

※设置存储在非易失性存储器中 Settings are saved in non-volatile memory

状态 Status	参考设定值 Reference value	备注 Note
接近ON	35	
接近OFF	25	近接OFFは、近接ONよりも小さい値にすること Proximity OFF should be less than proximity ON.
选择ON	80	選択ONは、近接ONよりも大きい値にすること Selection ON should be bigger than proximity ON.
选择OFF	60	選択OFFは、選択ONよりも小さい値にすること Selection OFF should be smaller than selection ON.
决定ON	300	決定ONは、選択ONよりも大きい値にすること Decision ON should be bigger than selection ON.
决定OFF	200	決定OFFは、決定ONよりも小さい値にすること Decision OFF should be smaller than decision ON.
接触ON	2700	タッチONは、決定ONよりも大きい値にすること Touch ON should be bigger than decision ON.
接触OFF	1350	タッチOFFは、タッチONよりも小さい値にすること Touch OFF should be smaller than touch ON.

接近: Proximity 选择: Selection 决定: Decision 接触: Touch

选择状态以上（选择・决定・接触）输出X,Y,Z数据。（Vendor class）

接近及无检出时输出 (X,Y,Z) = (0,0,0)。

X, Y, Z data is output at the selection status or higher (Selection, Decision, Touch). (Vendor class)

When proximity and no detection are performed, (X,Y,Z) = (0,0,0) is output.

・传输例 (ASCII code形式)

Example (ASCII Code)

STX'06070005001800170047003B002C01FA0014'

Command 閾値 Threshold Checksum

串行端口的通信设置

Serial Port Settings

项目 Item	设定 Setting
BaudRate	9600
Databit	8
Handshake	None
Parity	None
Stopbits	One

※原点设定、检出状态的设定等的设定回数请少于100回(写入非易失性存储器)。

The process of writing to nonvolatile memory such as origin setting and detection status setting should be no more than 100 time.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(15/31)

频率设定 Frequency setting
 ※设定保准在非易失性存储器中 Settings are saved in non-volatile memory

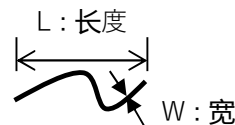
频率设定值 Frequency setpoint	对应频率 Frequency	Host ⇒ AirInput™ Panel
00	88kHz	STX'140039'
01	70kHz	STX'140138'
02	58kHz	STX'140237'

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(16/31)

8. 外观规格 Visual quality

8-1 可视区域 View Area

项目 Item	判定基准 Judgement		缺陷状态 Status
点状缺陷 Dot defect	直径 Diameter: D[mm]	个数 Quantity	
	$D \leq 0.26$	不问 allowed	
	$0.26 < D \leq 0.5$	$n \leq 8$, OK	
	$0.5 < D$	0	
线状缺陷 Line defect	Width: W[mm]	Length: L[mm]	个数 Quantity
	$W \leq 0.05$		不问 allowed
	$0.05 < W \leq 0.08$	$L \leq 20$	不问 allowed
		$20 < L$	0
	$0.08 < W \leq 0.15$	$L \leq 8$	不问 allowed
		$8 < L \leq 20$	$n \leq 10$, OK
	$0.15 < W$	$20 < L$	0
脏污以及界限不明的缺陷 Defect of dirt and defects of unclear boundaries	可擦拭的、或本制品的检查环境、检查条件下看不见的缺陷，不问。 Defects that can be removed by wiping, or defects that can not be seen in the inspection environment and conditions of this product		
裂痕 Crack	不允许 None		



注1 : 缺陷是指外观表面上的凸起、污垢、伤痕、打痕等。

Note1: Defects are bumps, dirt, scratches, dents on the cosmetic surface.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(17/31)

8-2 黑框区域 Black frame area

项目 Item	判定基准 Judgement		缺陷状态 Status
点状缺陷 Dot defect	直径 Diameter: D[mm]	个数 Quantity	
	$D \leq 0.26$	不问 allowed	
	$0.26 < D \leq 0.5$	$n \leq 8$, OK	
	$0.5 < D$	0	
线状缺陷 Line defect	Width: W[mm]	Length: L[mm]	个数 Quantity
	$W \leq 0.05$	不问	不问 allowed
	$0.05 < W \leq 0.1$	$L \leq 25$	不问 allowed
		$25 < L$	0
	$0.1 < W \leq 0.2$	$L \leq 15$	不问 allowed
		$15 < L \leq 25$	$n \leq 5$, OK
	$0.2 < W$	$25 < L$	0
针孔 Pinhole 黑框开口处外侧 2mm范围 2 mm outside range from the black frame opening	直径 Diameter: D[mm]	个数 Quantity	
	$D \leq 0.26$	不问 allowed	
	$0.26 < D \leq 0.5$	半径20mm以内4个以下 Within 20mm radius: $n \leq 4$ 缺陷间距离15mm以上 Distance between defects 15 mm or more	
	$0.26 < S$	0	
针孔 Pinhole 以上范围外 Other than the above range	直径 Diameter: D[mm]	个数 Quantity	
	$D \leq 0.5$	不问 allowed	
	$0.5 < D$	0	
黑框内周部缺失 Black frame inner periphery chipped	面积 Area: S[mm ²]	个数 Quantity	
	$S \leq 0.1$	不问 allowed	
	$0.1 < S \leq 0.15$	$n \leq 5$, OK	
	$0.15 < S$	0	
黑框外端部缺失 Black frame outer end chipped	面积 Area: S[mm ²]	个数 Quantity	
	$S \leq 0.1$	不问 allowed	
	$0.1 < S \leq 0.15$	$n \leq 10$, OK	
	$0.15 < S$	0	



注1 : 缺陷是指外观表面上的凸起、污垢、伤痕、打痕等。

Note1: Defects are bumps, dirt, scratches, dents on the cosmetic surface.

8-3 FPC 判定基準 FPC criteria

项目 Item	判定基准 Judgement	缺陷状态 Status
弯曲 Bend	无电气异常的弯曲 不问 Anything without electrical abnormalities is allowed	弯曲 : 无痕迹的暂留的弯曲 Bend : Not leaving a mark
折 Fold	不可 Not allowed	折 : 尖锐的、有痕迹残留的弯折 Fold : Sharp folds, marks
脏污 Dirt	导体露出部 Conductor exposed part	不可 Not allowed
	补强板部 Reinforcing sheet	不可 Not allowed
	配线部 Pattern area	不可 Not allowed

折 弯曲

导体露出部

折

补强板部

配线部

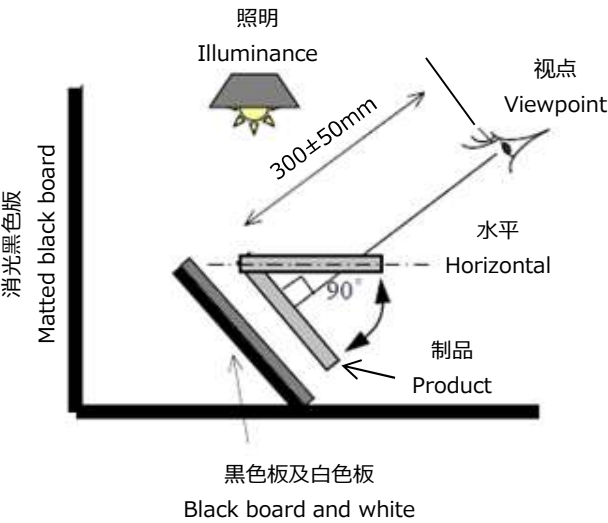
脏

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(19/31)

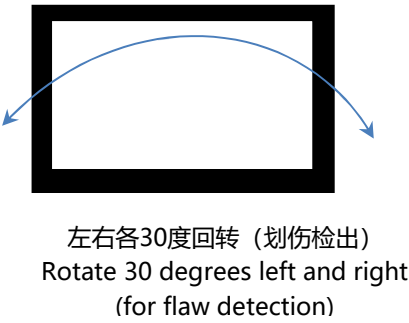
8-4 检查环境 Inspection environment

项目 Item	规格 Specification
光源 Light type	色温度：6500K 光源 Color temperature : 6500K
照度 Illuminance	1300±200lx 均匀度 0.8以上 ※均匀度 检查面上接收到的照明的均等性 最小照度/最大照度 1300±200 lx, Uniformity 0.8 or more Uniformity : Lighting uniformity on inspection surface "Min illuminance / Max illuminance"
检查角度与距离 Inspection angle and distance	光源与面板的位置关系如下图。 面板从水平状态到与视线成直角的范围为检查范围。 面板与检查员的眼睛之间保持 300 +/- 50 mm的距离。 The position between light, products and eyes of inspector is as below. The panel is inspected from the horizontal position to the right angle in the eye. The distance between the panel and the eye of the inspector is 300 +/- 50 mm.
背景 Background	黑色与白色板分别检查 Black and white board
检查时间 Time	色泽以外 每1部品10秒 About 10 seconds per product except color tone
观察者 Inspector	色觉正常者、视力(裸眼、矫正)0.7以上 Color vision normal person, eyesight (naked-eye or correction) 0.7 or more

侧面视
Side view



正面视
Front view



9. 包装规格 Packing specification

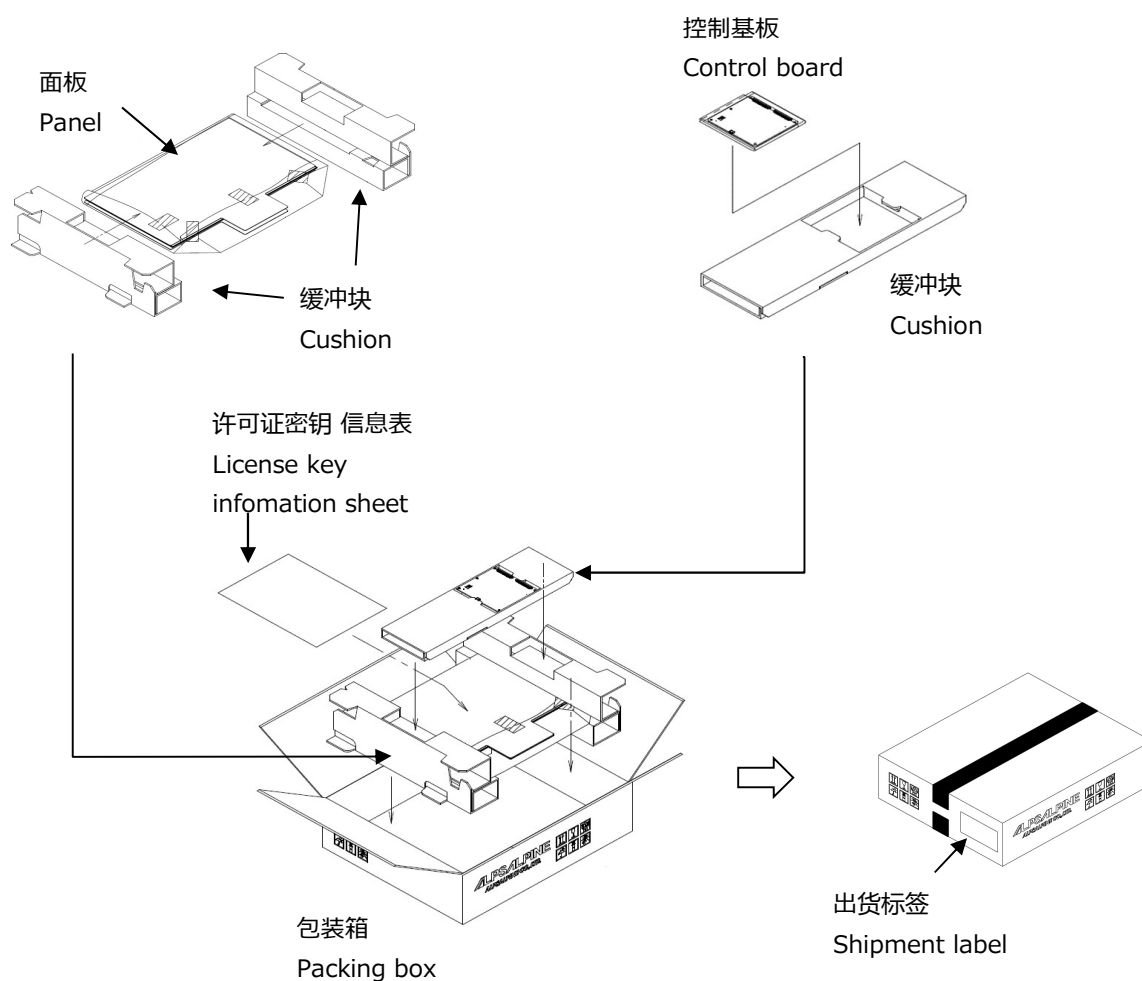
9-1 包装形态 Packing form

·包装箱尺寸 430 x 358 x 123mm

Packing box size

·包装数量 1pc/Box

Packing quantity



9-2 标签表示 Indication

出货标签按以下事项进行表示。

Following matters are shown on shipment label.

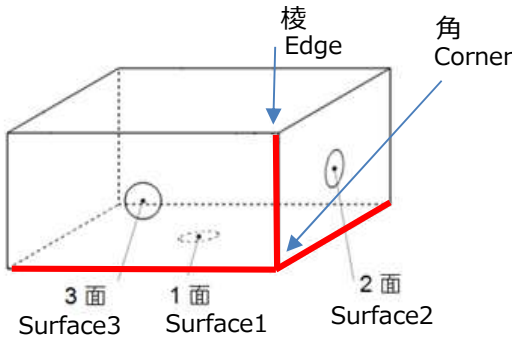
- | | |
|---------------|---------------------------|
| (1) 客户名 | Customer name |
| (2) 阿尔卑斯阿尔派品番 | ALPSALPINE product number |
| (3) 数量 | Quantity |
| (4) 批号 | Lot number |
| (5) 出货日 | Delivery date |

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(21/31)

10. 信赖性试验 Reliability test

项目 Item	实验条件 Test condition		判定基准 Acceptable Condition
高温保存 Dry heat storage	按以下条件实施试验、取出后，标准状态放置24h进行测试 After the following test , be in room ambient conditions for a period of 24H , then inspect.		满足外观基准、电气性能 Visual quality and electrical performance must be satisfied.
	温度 Temperature	60±2℃	
	试验时间 Time	240hr	
低温保存 Cold storage	按以下条件实施试验、取出后，标准状态放置24h进行测试 After the following test , be in room ambient conditions for a period of 24H , then inspect.		满足外观基准、电气性能 Visual quality and electrical performance must be satisfied.
	温度 Temperature	-20±2℃	
	试验时间 Time	240hr	
高湿保存 High humidity storage	按以下条件实施试验、取出后，标准状态放置24h进行测试 After the following test , be in room ambient conditions for a period of 24H , then inspect.		满足外观基准、电气性能 Visual quality and electrical performance must be satisfied.
	温度 Temperature	60±2℃	
	湿度 Humidity	90% 试验中无结露 No condensation during the test	
	试验时间 Time	240hr	
热冲击试验 Thermal shock storage	按以下条件实施试验、取出后，标准状态放置24h进行测试 After the following test , be in room ambient conditions for a period of 24H , then inspect.		满足外观基准、电气性能 Visual quality and electrical performance must be satisfied.
	温度 Temperature	-20±2℃⇔60±2℃	
	试验时间 Time	30min⇔30min 非动作 Non operate	
	试验时间 Time	240cycle	

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(22/31)

项目 Item	试验条件 Test condition		判定基准 Acceptable Condition
ESD静电试验 Electrostatic discharge immunity Test	极性/放电电压 Test voltage	空气放电: ±4KV Air discharge 接触放电: ±4KV Contact discharge	无永久故障 No hard failure
	放电电阻 Discharge	330Ω	
	放点电容 Capacity	150pF	
	放电点 Test point	可视面上 共9点 9 points on the view area	
	设置条件 Test method	按照IEC61000-4-2 Conform to IEC61000-4-2	
电磁场抗扰度试验 Electromagnetic Immunity Test	频率 Electromagnetic Frequency	80-1000MHz	出货初期设定值中不会输出干扰 印加下的 “决定” 或 “接触” 状态 In the shipping default value, "Decision" or "Touch" status is not output while applying noise.
	电场强度 Radiation Field Strength	3V/m	
	交变方式 Modulation method	AM 1kHz·80%	
	扫描步骤 Sweep Steps	1%	
	IEC61000-4-3:2012/IEC61326-3-1:2017 Table2 * 频率切换时完全停止施加干扰 During frequency switching, stop applying 干扰 completely.		
电源纹波干扰敏感性测试 Power supply ripple noise Susceptibility test	电源电压 Power supply voltage	4.75V	出货初期设定值中不会输出干扰 印加下的 “决定” 或 “接触” 状态 In the shipping default value, "Decision" or "Touch" status is not output while applying noise.
	干扰频率 Noise frequency	1k ~ 5MHz	
	频率间隔 Frequency step	1kHz	
	干扰波形 Noise waveform	正弦波 Sine wave	
	干扰等级 Noise level	200mVp-p	
包装货物试验 Transportation test	落下試験 Drop test *落下方向定义 Definition of drop direction:  * 试验场所/顺序: 1角 → 3棱 → 6面 The order of drop test : 1corner → 3Edge → 5Surfece * 落下回数 Number of drop times : 各1回 1 each side * 落下高度 Drop height : 0.8m		外观、构造上无破损。满足电气性能。 No breakage at the appearance and the structure. Electrical performance must be satisfied.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(23/31)

11. 表示 Label

以下事项将以不容易消失的方法表示在制品上。

We will display following particulars in the product by the method of not disappearing easily.

・制造批号表示 按照制品图。

Product Lot No. : Details by drawing data

12. 保证期间以及保管条件 Storage term and condition

制品的保存期间为包装未开封状态下纳入后1年时间内。

The storage term of the unopened product is one year after delivery.

但保管条件需遵守以下事项。

However, please keep the following storage conditions.

①制品的保管在35℃×85%RH以下的室内、避免避免存放在阳光直射或高温多湿的户外。

Keep the packing box in the room Temperature : 35degrees C or less and Humidity : 85%RH or less, do not keep them in outdoors where direct sunshine strikes and high temperature and high humidity.

②包装箱无不合理的负载。

Do not apply excessive load to the packing box.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(24/31)

13. 使用上の注意 Caution of using the product

13-1 使用目的 Purpose of using the product

- (1) 本製品は入力装置として使用して下さい。
This product is used for input device.
- (2) 本製品は屋内で使用して下さい。故障や、誤動作が直接人体に危害が及ぶ可能性がある場合、故障や、誤動作が直接人体に危害が及ぶ可能性がある場合、また、極めて高い信頼性が要求される特殊用途（航空・宇宙・原子力制御用、生命維持を目的とする医療用など）への使用はお避け下さい。
This product is used indoors. If there is a possibility that damages directly harms a human body by a failure or a malfunction, or you are going to use for special purpose requiring extremely high reliability (for aerospace, for nuclear power control, for medical purpose of life support or etc.), please do not use the product.
- (3) 国内外の輸出関連法規により規制されている製品の輸出に際しては、同法規を遵守の上、必要な許可、手続きなどを取ってください。
For the export of the product which are controlled items subject to foreign and domestic export laws and regulations, you must do the necessary permission and procedures according to the export laws and regulations.
- (4) 軍事用途またはテロなどの反社会活動目的では当製品を一切使用しないでください。
また、最終的にそれらの用途・目的で使用される恐れがある法人・団体・個人などへの供給を行なわないでください。
Do not use this product for military applications or anti-social activities such as terrorism, and do not supply to corporations, groups or individuals who may eventually use them for such purpose.

13-2 取扱いおよび保存上の注意 Caution of handling and storing the product

故障、破損、性能劣化の原因になりますので、以下の点に注意下さい。

Please note the following points as it may cause failure, damage, or performance degradation.

- (1) 製品を貼り付ける面は平面とし、異物などのかみこみがないようにしてください。
凹凸があると断線する恐れがあります。
Product attached surface must be flat. Unevenness may cause disconnection.
- (2) 製品を取り扱う場合は、ESD対策を行ってください。
When handling the product, take ESD measures.
- (3) 製品を持つ際は素手で扱わず手袋や指サック等を着用し、汚れが付着しないようにして下さい。
When handling the product, wear gloves or finger sack instead of bare hands to keep it clean.
- (4) 製品を持つ際は、側面を持つようにして下さい。
Handle edges of the product.
- (5) フレキシブルケーブルを無理に引っ張るような取扱い、折り曲げ作業を行わないで下さい。断線の恐れがあります。
Do not handle or bend the flexible cable forcibly because there is a risk of disconnection.
- (6) 納入時に表面が帯電している場合がありますので、組込み時にセットに影響がないよう、除電などの処理をお願い致します。
The product surface may be charged when the product is removed. Remove a static electricity before the assembling so that there is no influence on the assembling.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(25/31)

- (7) 贴合后的制品请勿剥离重贴、因为会有部品变形导致制品无法正常动作的风险。
Do not use products that have been pasted and peeled off.
There is a possibility that the product does not operate normally due to deformations.
- (8) 表面有脏污附着的情况，请用软布轻轻擦拭。
If dirt is attached to the product surface, wipe it gently with a soft cloth.
- (9) 表面有保护膜贴合的情况，请确认保护膜面的脏污以及异物附着情况。
脏污或异物可能会转移到表面、形成打痕。
If you laminate a protective film on the product surface, please confirm dirties and particles from it.
Dirties or particles may transfer the surface from a protective film or cause concaves.
- (10) 请勿用锋利的刀或尖锐物体摩擦或推动制品。
Do not scrape or push the product by something sharpened.
- (11) 请勿强行撕下、弯曲或扭曲产品。
Do not force to delaminate, bend or twist the product.
- (12) 请勿将产品放在硬物上或让它滑落在桌子上。
Do not put or slide the product on something hard.
- (13) 请勿将制品重叠放置，有划伤的风险
Do not stack products, as this may cause scratches.
- (14) 请勿在有水、有机溶剂、酸性气体或者以上物质接触的状态下保存、组装本制品。
因为不是防水、防滴构造，会有内部侵入后腐蚀、劣化的风险
Do not storage or assemble the product in a environment that water, organic solvent and acidic atmosphere exists or can contact with them. As the product is not a waterproof, they may cause corrosion or degradation it by invading inside.
- (15) 请勿在尘埃、脏污容易附着的环境下保存、组装本制品。推荐使用洁净室环境。
Do not storage or assemble the product in dusty or dirty environment.
We recommend to assemble in clean room.
- (16) 制品保存时，请使用包装箱密封保存，并避免承受负载。
When storage the product, use a packing box and seal it in a storage environment, and storage without excessive load.
- (17) 结露是自然现象，可能发生于制品表面、内部。室温下放置会消除，请勿在结露状态下使用本制品。
A dew condensation may appear the product surface or inside as it's a natural phenomenon.
Do not use the product with a dew condensation as it disappear by standing at room temperature.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(26/31)

13-3 整机组装时的注意 Caution of assembling into your product

- (1) LCD或者金属Case与制品面板部之间需要保持1.0mm以上的间隙。
LCD与制品面板部之间的间隔太小可能会引起预期以外的误动作。
特别是电子干扰的影响较大的情况，间隔的保持更为必要。
A gap of 1.0 mm or more is required between the LCD or metal case and the product panel area.
If the distance between the LCD and the product panel area is narrow, it may cause unexpected operation such as malfunction. In particular, if the influence of noise is large, it is necessary to increase the distance.
- (2) 金属Case与FPC之间也有以上同样干涉。请保持金属Case与FPC之间的间隔固定不变(0.2mm左右)，间隔变化会引起误动作。
Interference may also occur between a metal case and the flexible cable.
Fix the flexible cable keeping the distance between a metal case and the flexible cable (ex 0.2mm).
Being varied the distance may cause malfunction.
- (3) FPC应保持不受到外壳的压力而造成强压的构造、或者保持无根部紧弯曲造成压力的构造。因为有绝缘不良、回路断线的风险。
The flexible cable should be structured so that it is not strongly stressed by the pressure of the case, etc., or that the base is tightly bent. There is a risk of insulation failure and circuit disconnection.
- (4) 请使用同系列编号的sensor和控制基板进行组合使用，非同系列有性能无法满足的可能性。
Use a combination of sensors and control board with the same serial number.
Performance may not be satisfactory.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(27/31)

13-4 使用上的注意 Caution of use

- (1) 非接触操作的情况，请保持指尖与面板面垂直接近。
指先以外的拳头等手部率先靠近时，可能会造成指尖无法检出。
For touchless operation, keep your fingertip close to the panel surface vertically.
If a fist other than the fingertip is close to the panel surface, the fingertip may not be detected correctly.
- (2) 出货时检出状态的阈值设定如下记。
请根据组立状态下的输出值调整阈值。
The detection status threshold settings at the time of shipment are as follows.
Please adjust the threshold according to the output value in the built-in state.

检出状态 Detect Status	閾値 Threshold	
	ON	OFF
接近 Proximity	35	25
选择 Selection	80	60
决定 Decision	300	200
接触 Touch	2700	1350

※閾値の設定方法参考「AirInput™ 面板动作确认/设定APP说明书」。

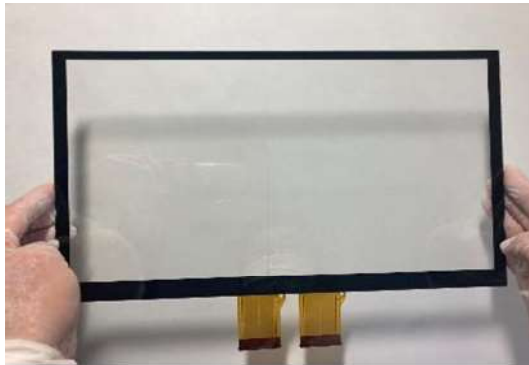
For the threshold setting method, refer to "AirInput™ Panel Operation confirmation App manual".

- (3) 检出状态下30秒同一状态无变化的情况，请校正使Z轴数值为0。
手指接近也不能输入的情况，请将手指先离开面板面后再次操作。
If the detection status does not change from the same status for 30 seconds, perform calibration so that Z becomes 0. If you can't input even if you bring your finger closer, remove your finger and try again.
- (4) 本制品2个以上相邻使用时，可能会产生相互干涉。
请事前确认后使用。
If two or more products are used next to each other, they may interfere with each other.
Please check in advance before use.
- (5) 如果接收到与驱动频率相近的电子干扰，可能会发生误动作。
请事先确认使用环境后使用。
If it receives noise around, which is the same as the drive frequency, it may malfunction.
Please check in advance in the usage environment before use.
- (6) 操作面上有水滴附着的情况有误输入的可能性。
水滴附着在面板表面时，请擦拭水滴后重新启动动作。
If water droplets adhere to the operating surface, there is a possibility of incorrect input.
If water droplets stick to the surface of the panel, please activate the operation after wiping off the water droplets.
- (7) LCD的干扰可能会引起误动作、请在整机中组装确认。
The product may malfunction due to LCD noise. Please check it on your products.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(28/31)

13-4 制品的拿取方法 Method of handling the product

正确的拿取方法 Good method of handling the product



带手套、指套下，拿取制品侧面。
Handling edges of the product with gloves or fingerstalls or etc.

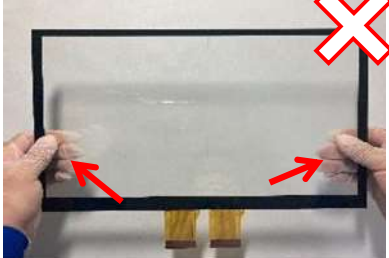
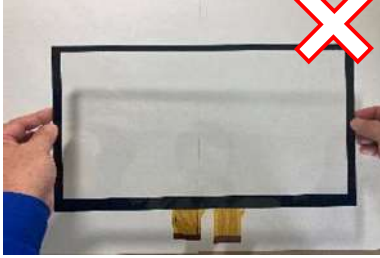
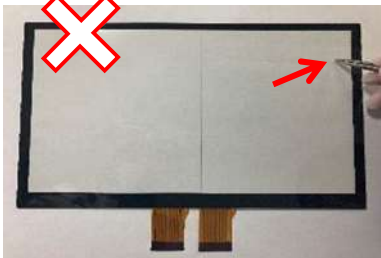
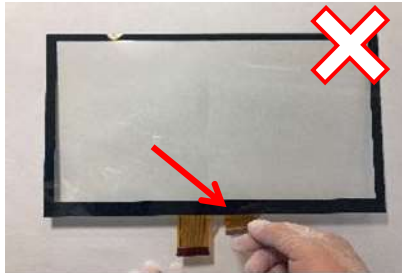
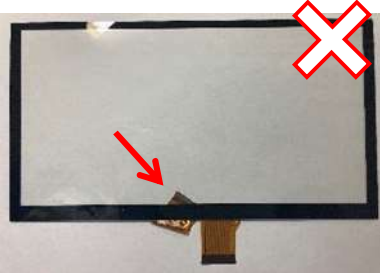
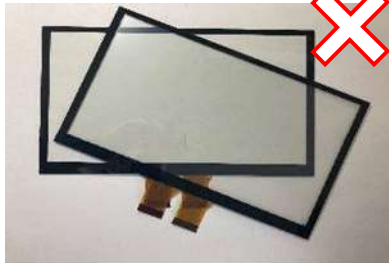
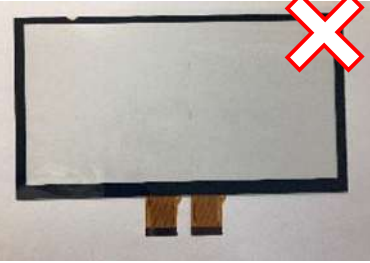
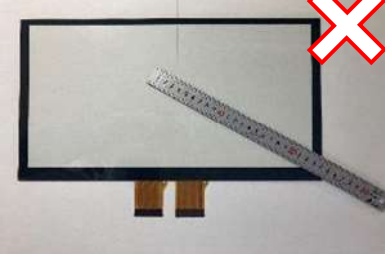
带电防止对策

基板与sensor在拿取时请佩戴静电腕带等采取足够的防静电措施。

When handling the board and the sensor, please take sufficient antistatic measures, such as installing an antistatic wristband.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(29/31)

错误的拿取方法 Bad method of handling the product

 勿拿取制品表面。 Do not touch the surface	 勿徒手拿取。 Do not handling with bare hands	 勿用硬物触碰制品 Do not hit the edges by something hard
※ 会导致伤、脏污。 It may cause scratches and dirt.		※ 会导致伤、打痕。 It may cause scratches and dents.
 FPC勿强行拉扯 Do not force to pull the flexible cables	 FPC勿折 Do not fold the flexible cables	
※ FPC上施加负载、会导致断线等故障。 If an excessive load is applied to the flexible cables, it may cause troubles such as a breaking of pattern.		
 制品不重叠 Do not stack up	 不要直接放在平面上 Do not put on flat plane directly	 不要在制品上放置坚固硬物 Do not put something hard on the product
※ 会导致伤、脏污等外观不良。 They may cause scratches or dirties		

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(30/31)

14. 专利相关注意点 Notes concerning patent

直接或间接侵权、第三者知识产权发生侵害的情况、无论是否可预见，客户将承担相应责任。仅本制品本身的结构、机能导致的知识产权侵害除外。

Please note that customer shall take all responsibilities for any infringement of intellectual property right of a third party whether or not direct, inducing, or contributory infringement and whether or not foreseeable unless such infringement is caused solely by the structure and function of the product itself.

15. 特记事项 Remarks

- (1) 本规格书有疑义的情况、或者问题事项发生的情况，在双方协议下解决。
如果您对本制品有任何疑问，请提前联络我们。
When the doubts or problem matters are caused in this specification, we are to solve problems through discussion. If you have points of uncertainty to this product, please contact us in advance.
- (2) 本规格书如有更改，恕不另行通知。请注意。
This specification is subject to change without notice. Please note in advance.
- (3) 本规格书包含版权保护内容，请谨慎处理，未经许可，请勿复制本规格书内容。
This specification contains contents related to our copyrights. Therefore please handle with care of it, and don't copy it without our permission.
- (4) 使用本产品时，请遵守本规格书中记载的使用条件和以下注意事项。
偏离本规格书记载的使用条件或注意事项、由本制品规格引起的任何损害、本司概不负责。
On the use of this product, please observe operating condition described on this specification and following attentions. Concerning the damage caused by the use of this product that not observe operating condition described on this specification or attentions, we don't assume the responsibility at all.

ALPSALPINE CO.,LTD.	AirInput™ Panel Specifications	DOCUMENT No. HCEPM0C002A_SPEC_S
Ver.2.0		(31/31)

16. AirInput™ 面板用 专用操作软件 Dedicated operation software for AirInput™ Panel

该软件是Stellar Link Co., Ltd.开发的与Windows操作系统兼容的AirInput™面板专用操作软件。

通过使用该软件，可以将现有的触控软件实现非接触触控操作。

请检查包装箱中包含的许可证密钥信息表，从Stellar Link Co., Ltd.的专用网站下载软件，并注册为用户。

ユーザー登録を行ってください。

This software is a dedicated operation software for AirInput™ Panel compatible with Windows OS, and is manufactured by Stellar Link Co., Ltd.

By using this, it is possible to operate existing touch software without touch.

Please check the license key information sheet included in the packing box,

download the software, and register as a user from the dedicated website of Stellar Link Co., Ltd.

参考)许可证密钥信息表

Reference) License key information sheet

ライセンスキー情報
License Key

AirInput™ 専用操作ソフトウェア アカウントのご案内

・ユーザーID:xxxxxxxxxx

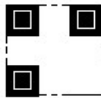
・初回パスワード:xxxxxxxxxxxxxx

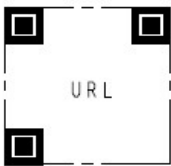
・URL:<http://usersite.stellarlink.co.jp/>

・製品: AirInput™ 専用操作ソフトウェア Windows版

・型番: SLTL-W001

・ライセンス数: 1





URL

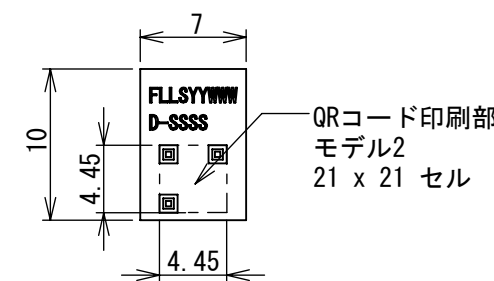
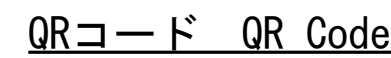
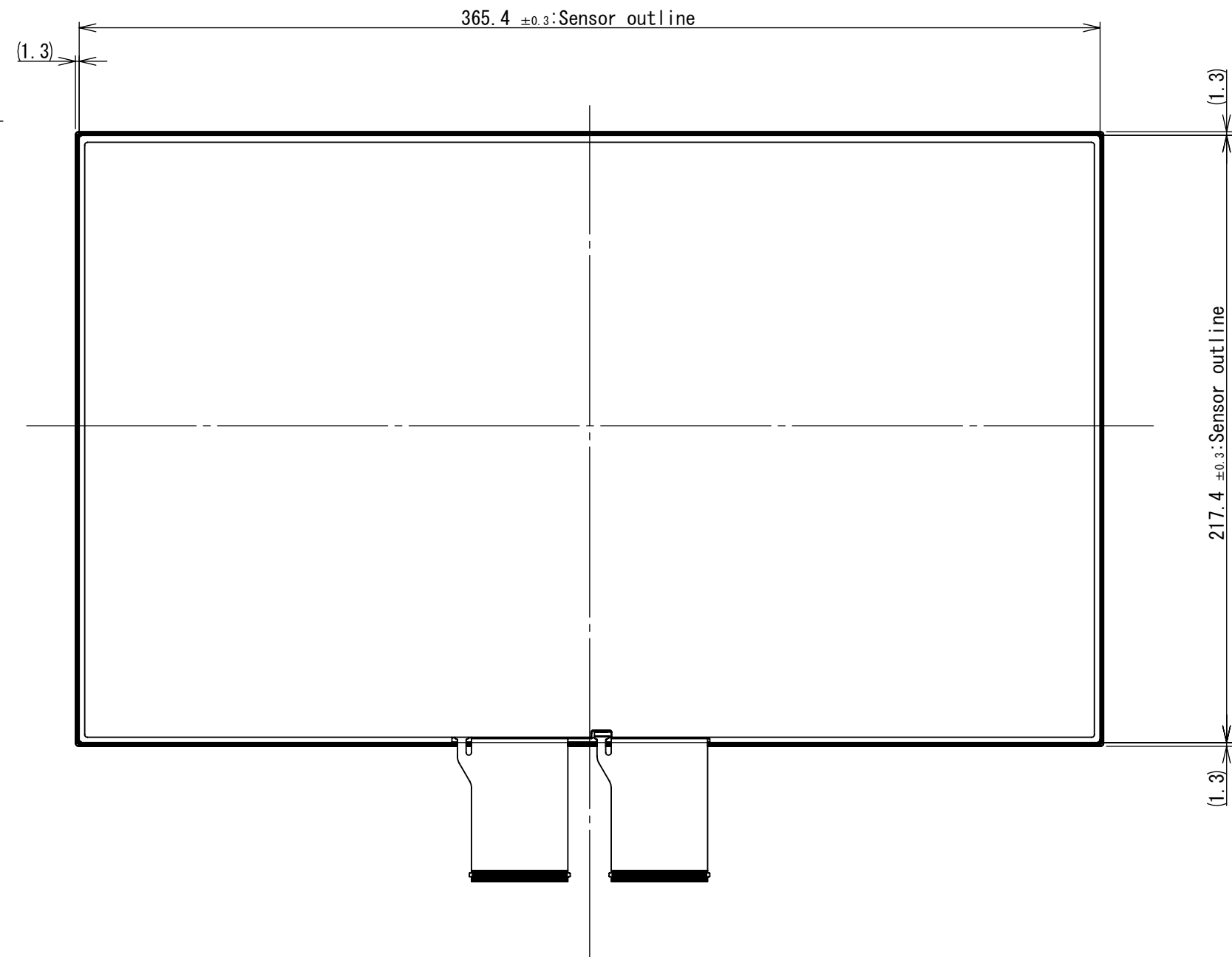
※大切に保管してください

パスワードは、ログイン後の「パスワード変更」で変更可能です。
初回パスワードは、変更の上ご利用くださいますことをおすすめいたします。

※上述格式可能会发生变化。

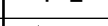
The above format is subject to change.

制御基板外形 Control board outline



QRコード文字表記部	
FLLSYWWDD-SSSS	
F	:Supplier letter (A)
LL	:Assembly Line Number (01,02,...)
S	:Shift (day=1,night=2)
YY	:Year (20=2020,21=2021,...)
WW	:Week (01,02,...)
D	:Day (Monday=1,...,Sunday=7)
SSSS	:Serial number (0001,...,9999(in 1day))

1. 本製品は、AirInput XXYYタイプ高感度センサモジュールです。
This product is AirInput XXYY type high sensitivity sensor module.
2. センサ部はパネル外形の上端及び左端を基準とします。
The sensor part is relative to the top and left edges of the panel outline.
3. 指定のない寸法公差は ± 0.3 とします。
Unspecified dimensional tolerances are ± 0.3 .
4. 制御基板との通信はUSB Micro-Bコネクタになります。
Communication with the control board is via USB Micro-B connector.
5. センサ側FPCと制御基板の接続は、ガラス操作面と基板実装面が上になるような状態で接続してください。FPCコネクタは下接点になります。
The connection between the sensor side FPC and the control board should be connected so that the glass operation surface and the board mounting surface are the same surface.

					ALPSALPINE CO.,LTD.		
					DSGD. '22. 06. 16 Shinichi Higuchi	SCALE 1:2	NO. HCEPM0A002A (1/1)
					CHKD. '22. 06. 23 Junichi Inamura		TITLE 15. 6inchWide製品図
					APPD. '22. 06. 23 Koji Tsukamoto	UNIT mm	DOCUMENT NO. HCEPM0A002A. 1100. 21
SYMB	DATE	APPD	CHKD	DSGD			