



*Shenzhen Mooncell Electronics Co., Ltd*

## *FPGA Receiving Card*

## *A40 Product Specifications*

# *Updates History*

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<i>File Version</i>		<i>Released Date</i>	<i>Updates Records</i>
<i>V3.0</i>	<i>A40 V1.0.0</i>	<i>1/11/2022</i>	<i>First Edition</i>
<i>V3.1</i>	<i>A40 V1.0.0</i>	<i>29/3/2023</i>	<i>Modify the size drawing and hole position description</i>

# *1 Product Overview*

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## *Product Introduction*

*A40 is a small sized receiving card that fully researched and developed by Mooncell; the maximum loading capacity could reach up to 256\*384 pixels; with strong processing ability, super reliability and high competitive price.*

## *Product Features*

- *It features the small size and thickness, saving a lot more space for the narrow cabinet and space of the led strip(bar).*
- *It features high precision connector, which is dust-proof & shock proof; with high reliability and stability.*
- *Simplify design and improve electromagnetic compatibility with integrated network transformer*
- *With strong LED Driver IC compatibility.*

## *Application Scenarios*

*It could be widely used for high-end LED display area that requires high standards; and has significant advantages in application scenarios such as led rental display, TV Broadcast, LED display for respectable Event, High-end project, etc.*

## 2 Function Introduction

### Displaying Effect

<i>It supports pixel level brightness and Chroma Calibration</i>	<i>Using it with the Mooncell Calibration Software to calibrate each one of the pixels on its brightness and Chroma. It can effectively eliminate the Chromatic aberration so as to enhance its consistency of the brightness and Chroma to a high level and result in a better displayed effects.</i>
<i>Multiple Solutions of the Displayed Effects are Supported</i>	<i>Using it with Monncell AutoLED Software, the Refresh and Grey Scale performances are able to take the precedence over other settings.</i>
<i>The Images on the led screen can be rotated 90 degree in a factor of multiple times</i>	<i>Using it with Mooncell AutoLED Software.</i>
<i>The images can be zoomed in or out</i>	<i>Using it with Mooncell AutoLED</i>

## ***Enhanced Operability:***

<i>The Receiving Card is Supported to detect its own Sequence number</i>	<i>Using the Network Port testing function on Mooncell AutoLED Software, the receiving card serial number and the Network Port Information will be displayed on the target cabinet. Users will be able to get to know the locations of the receiving cards as well as its Connection diagram.</i>
<i>Data Port User-Defined is supported</i>	<i>Using it with the Mooncell AutoLED Software, you can detect and edit the output data of the receiving cards.</i>
<i>To build up a complicated cabinet is supported</i>	<i>On AutoLED Software, there is an ‘Advanced Setting’, from here you can quickly arrange or structure the modules at your option.</i>
<i>To structure a complicated Led Screen is supported</i>	<i>On AutoLED Software, there is a “Complicated Led Screen Connection”, from here you can quickly arrange or structure the cabinet modules on your option.</i>

## ***Hardware Stability***

<i>Ethernet Cable Backup(Hot Backup)</i>	<i>The main cable will be having the loop connection. If there's one cable breaks then still there will have another one to make sure the led display work properly.</i>
	<i>Dual receiving cards backup is supported( Dual Circuit backup design) Customized :when the main working receiving card fails, the other one (backup) will take its job to keep the led display working properly.</i>
<i>It supports to detect the voltage</i>	<i>It will detects the voltage status of the receiving cards.</i>
<i>It supports to detect the temperature</i>	<i>The operating temperature of the receiving cards could be detected.</i>

## ***Smart Software and Hardware Stability***

<i>The receiving card can read the configuration data back from where it has been stored</i>	<i>You will be able to do this on Mooncell AutoLED Software.</i>
<i>It supports to detect the error rates of the network cable</i>	<i>On the Mooncell AutoLED Software, you can detect the network cable connectivity in real time to tell the condition of the network cables, so that you can get rid of any errors immediately.</i>
<i>Communication Monitoring Function</i>	<i>On Mooncell AutoLED Software, you can monitor the Working Status of the receiving cards in real time.</i>

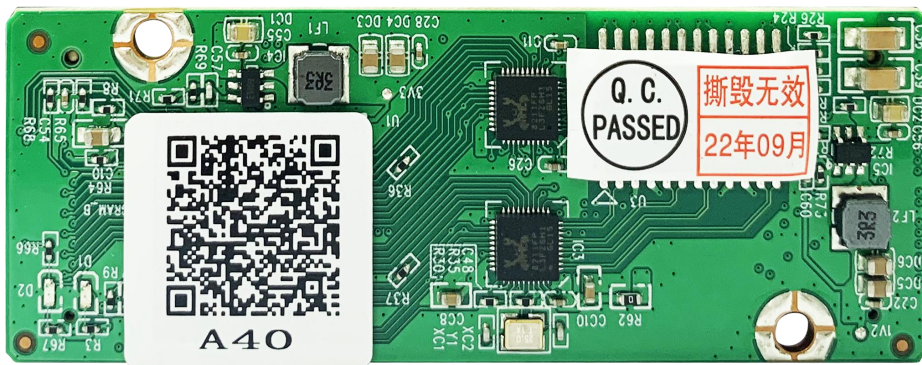
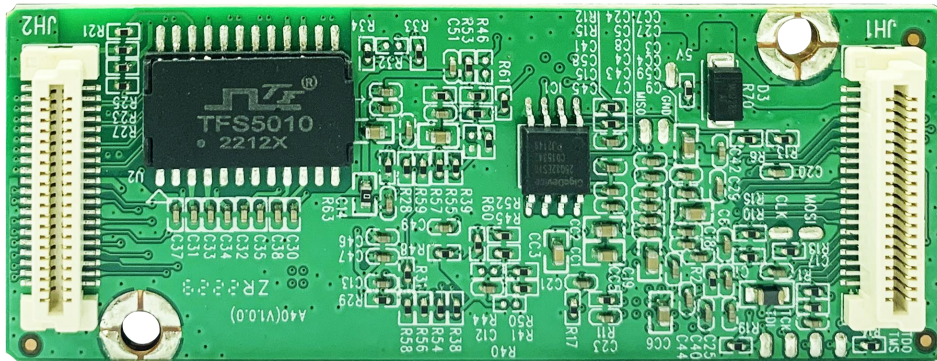
# 3 Product Parameters

## Basic Parameters

RGB Parallel	The Maximum Loading Capacity(Pixels)	Loading Capacity After lightness Calibrating (Pixels)	Loading Capacity after Color Calibrating(Pixels)
10 Groups	256*384	256*384	384*224

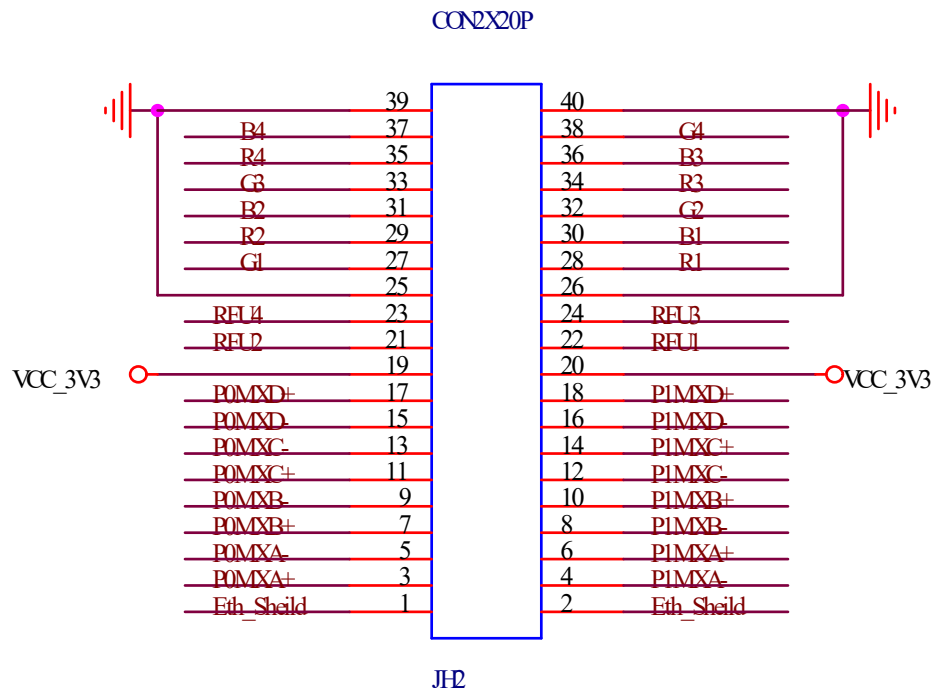
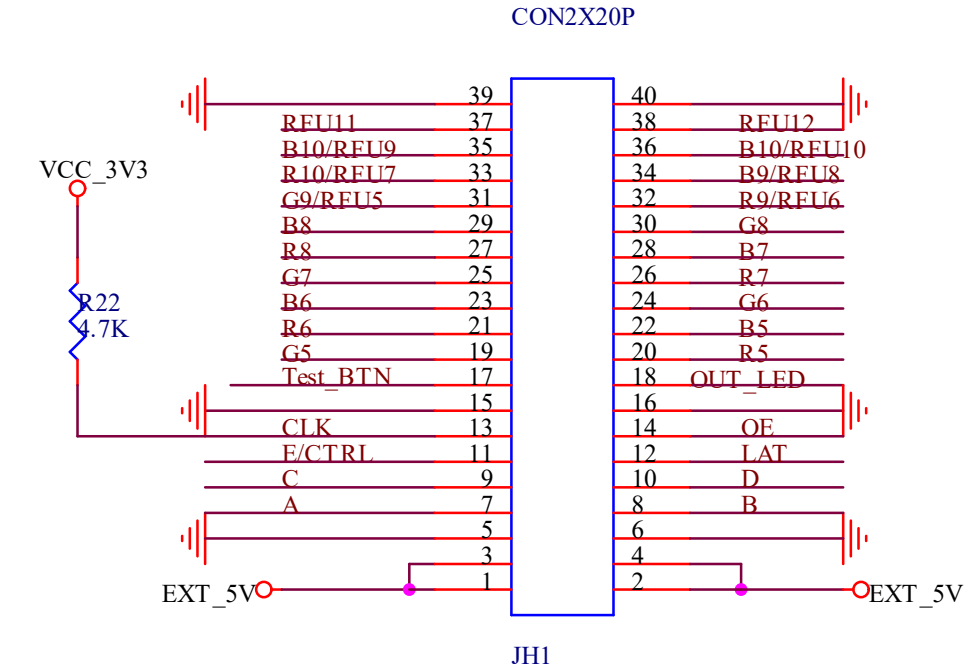
Single Network Pot Cascading Quantity	Scanning Lines Supported		
≤1000PCS	1-64 Scan		

## Hardware Introduction



## Output Port Definition

Port Definition of the 10 Groups of parallel connection data





**JH1 Definition:**

<i>Illustration</i>	<i>Definition</i>	<b>PIN</b>	<b>PIN</b>	<b>Definition</b>	<i>Illustration</i>
Input power VCC Recommended: 5.0V	VCC	1 3	2 4	VCC	Input power VCC Recommended: 5.0V
<i>Ground Connection</i>	GND	5	6	GND	<i>Ground Connection</i>
<i>Line decoded signal</i>	A	7	8	B	<i>Line decoded signal</i>
<i>Line decoded signal</i>	C	9	10	D	<i>Line decoded signal</i>
<i>Line decoding signal/blanking control signal (Note 1)</i>	E/CTRL	11	12	LAT	Latch signal output
<i>Shift clock output</i>	CLK	13	14	OE	Display enabled (Note 2)
<i>Ground Connection</i>	GND	15	16	GND	<i>Ground Connection</i>
Test button	Test BTN	17	18	OUT-LED	Operating Indicator (Note 3)
RGB data output	G5	19	20	R5	RGB data output
	R6	21	22	B5	
	B6	23	24	G6	
	G7	25	26	R7	
	R8	27	28	B7	
	B8	29	30	G8	
Note 4	G9/RFU5	31	32	G9/RFU6	Note 4
	R10/RFU7	33	34	B9/RFU8	
	B10/RFU9	35	36	G10/RFU1	
	RFU11	37	38	RFU12	
Ground Connection	GND	39	40	GND	Ground Connection

Note 1: Pin 11 is a multiplexed signal, when the number of scans is  $\leq 16$ ,

it is a blanking control signal; when it is > 16, it is an E signal

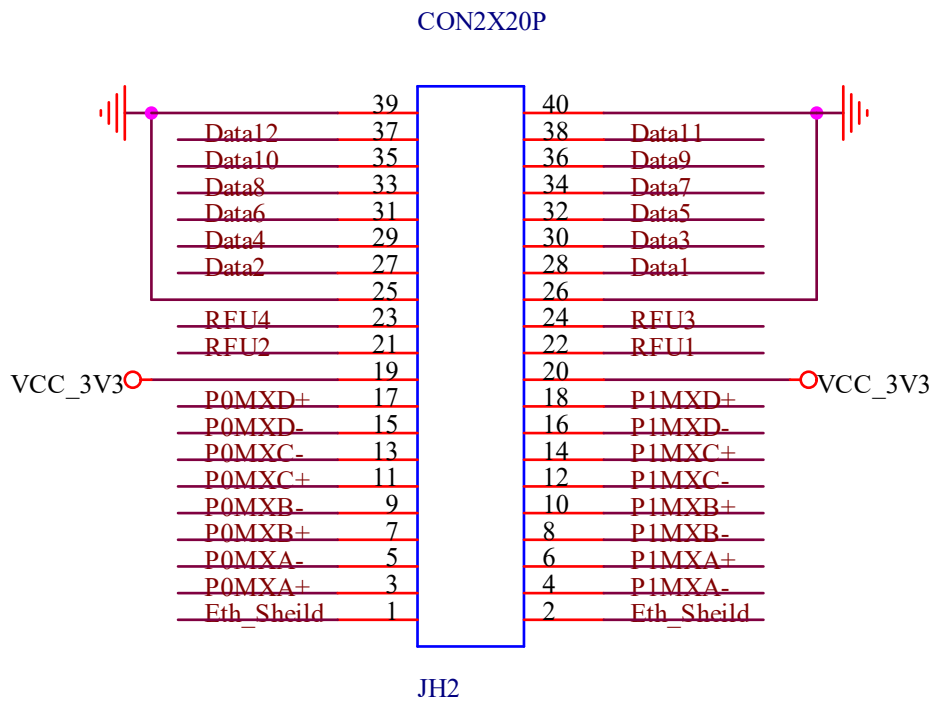
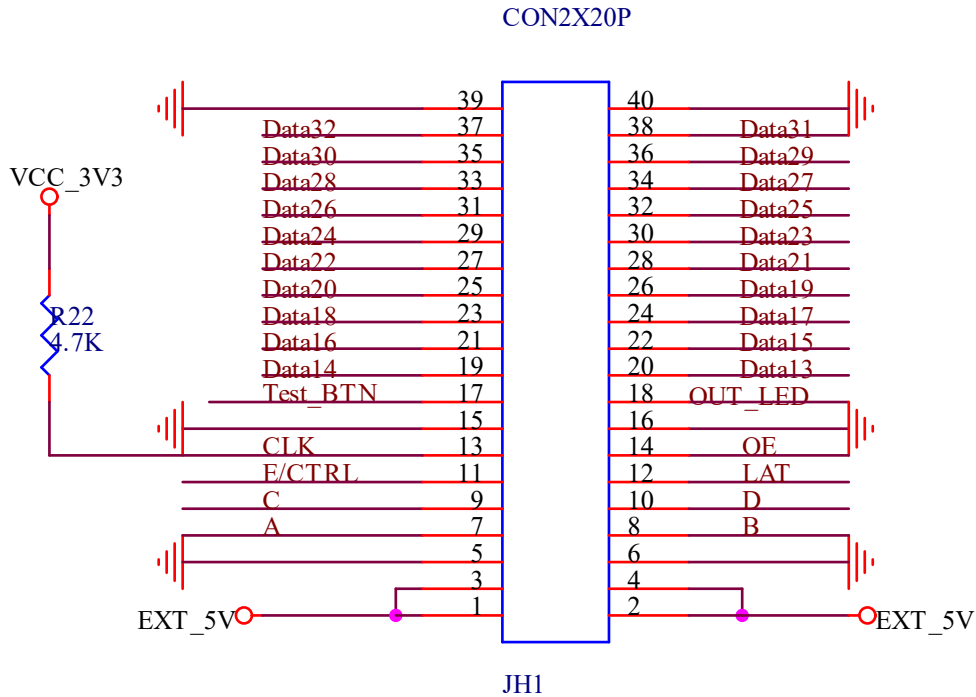
Note 2: Pin 14 is the display enable pin. When using a PWM chip, it is a GCLK signal

Note 3: The operating indicator is active at a low level.

**JH2 Definition :**

<i>Illustration</i>	<b>Definition</b>	<b>PIN</b>	<b>PIN</b>	<b>Definition</b>	<i>Illustration</i>
Earthing of casing	Eth_Sheild	1	2	Eth_Sheild	Earthing of casing
<i>Gigabyte Ethernet Port</i>	P0MXA+	3	4	P0MXA+	<i>Gigabyte Ethernet Port</i>
	P0MXA-	5	6	P0MXA-	
	P0MXB+	7	8	P0MXB+	
	P0MXB-	9	10	P0MXB-	
	P0MXC+	11	12	P0MXC+	
	P0MXC-	13	14	P0MXC-	
	P0MXD+	15	16	P0MXD+	
	P0MXD-	17	18	P0MXD-	
3.3V Reserved Extended Function Interface	VCC_3.3V	19	20	VCC_3.3V	3.3V Reserved Extended Function Interface
	RFU2	21	22	RFU1	
	RFU4	23	24	RFU3	
<i>Ground Connection</i>	GND	39	40	GND	<i>Ground Connection</i>

32 Groups of Serial Connection Data Port



**JH1 Definition :**

<i>Illustration</i>	<i>Definition</i>	<b>PIN</b>	<b>PIN</b>	<b>Definition</b>	<i>Illustration</i>
Input power VCC Recommended: 5.0V	VCC	1 3	2 4	VCC	Input power VCC Recommended: 5.0V
<i>Ground Connection</i>	GND	5	6	GND	<i>Ground Connection</i>
<i>Line decoded signal</i>	A	7	8	B	<i>Line decoded signal</i>
<i>Line decoded signal</i>	C	9	10	D	<i>Line decoded signal</i>
<i>Line decoding signal/blanking control signal (Note 1)</i>	E/CTRL	11	12	LAT	Latch signal output
<i>Shift clock output</i>	CLK	13	14	OE	Display enabled (Note 2)
<i>Ground Connection</i>	GND	15	16	GND	<i>Ground Connection</i>
Test button	Test BTN	17	18	OUT-LED	Operating Indicator (Note 3)
RGB serial data output	G5	19	20	R5	RGB serial data output
	R6	21	22	B5	
	B6	23	24	G6	
	G7	25	26	R7	
	R8	27	28	B7	
	B8	29	30	G8	
Note 4	G9/RFU5	31	32	G9/RFU6	Note 4
	R10/RFU7	33	34	B9/RFU8	
	B10/RFU9	35	36	G10/RFU1	
	RFU11	37	38	RFU12	
<i>Ground Connection</i>	GND	39	40	GND	<i>Ground Connection</i>

Note 1: Pin 11 is a multiplexed signal, when the number of scans is  $\leq 16$ , it is a blanking control signal; when it is  $> 16$ , it is an E signal

Note 2: Pin 14 is the display enable pin. When using a PWM chip, it is a GCLK signal

Note 3: The operating indicator is active at a low level.

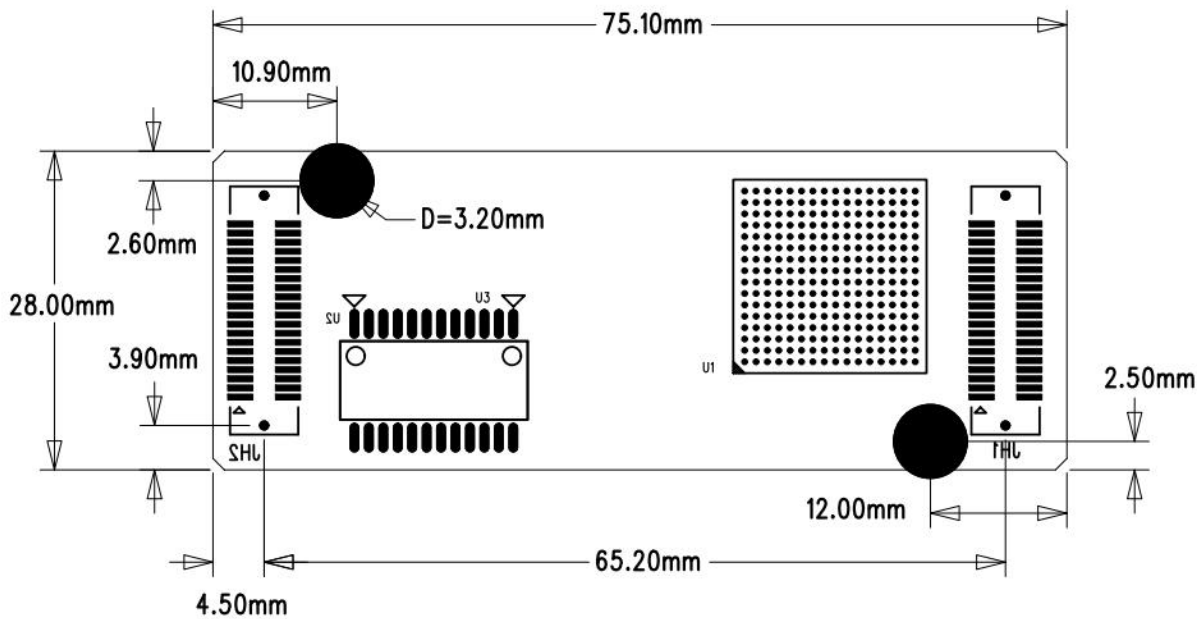
***JH2 Definition :***

<i>Illustration</i>	<b>Definition</b>	<b>PIN</b>	<b>PIN</b>	<b>Definition</b>	<i>Illustration</i>
Earthing of casing	Eth_Sheild	1	2	Eth_Sheild	Earthing of casing
<i>GigabyteEthernet Port</i>	P0MXA+	3	4	P0MXA+	<i>Gigabyte EthernetPort</i>
	P0MXA-	5	6	P0MXA-	
	P0MXB+	7	8	P0MXB+	
	P0MXB-	9	10	P0MXB-	
	P0MXC+	11	12	P0MXC+	
	P0MXC-	13	14	P0MXC-	
	P0MXD+	15	16	P0MXD+	
	P0MXD-	17	18	P0MXD-	
3.3V	VCC_3.3V	19	20	VCC_3.3V	3.3V
Reserved Extended Function Interface	RFU2	21	22	RFU1	Reserved Extended Function Interface
	RFU4	23	24	RFU3	Function Interface
<i>Ground Connection</i>	GND	39	40	GND	<i>Ground Connection</i>
<i>RGB data output</i>	G1	27	28	R1	<i>RGB data output</i>
	R2	29	30	B1	
	B2	31	32	G2	
	G3	33	34	R3	
	R4	35	36	B3	
	B4	37	38	G4	
<i>Ground Connection</i>	GND	39	40	GND	<i>Ground Connection</i>

### **Indicator Illustration**

<i>Indicator</i>	<i>Position</i>	<i>Status</i>	<i>Illustration</i>
<i>Status Indicator (Green)</i>	<i>D1</i>	<i>Flickering Slowly at a constant</i>	<i>The receiving card is working properly, The Ethernet Cable Connection is fine, No DVI Signal Input</i>
		<i>Flickering Fast at a constant</i>	<i>The receiving card is working properly, The Ethernet Cable Connection is fine, with DVI Signal Input</i>
		<i>It goes out</i>	<i>No Gigabit Ethernet Signal</i>
		<i>Fast Flickering 3 Times</i>	<i>The receiving card is working properly, The Ethernet Cable Loop Connection is fine, DVI Signal Input</i>
<i>Status Indicator</i>	<i>D2</i>	<i>Long Lasting On</i>	<i>Power is On</i>

### **Dimensions**



# 4 Product Specifications

## Specifications

<i>Electric Parameters</i>	<i>Input Voltage</i>	<i>DC3.5-5.5V</i>
	<i>Rated Current</i>	<i>0.6A</i>
	<i>Rated Power</i>	<i>3W</i>
<i>Operating Environment</i>	<i>Operating Temperature</i>	<i>-20 °C - 70 °C</i>
	<i>Operating Humidity</i>	<i>10%RH-90%RH</i>
<i>Storage Environment</i>	<i>Temperature</i>	<i>-25 °C ~125 °C</i>
<i>Dimensions</i>	<i>75.1mmX28mm</i>	
<i>Net Weight</i>	<i>11.9g</i>	
<i>Certifications</i>	<i>It conforms to RoHS and CE-EMC standards.</i>	
<i>Accessory name</i>	<i>Specifications</i>	<i>quantity</i>
<i>Female seat (optional)</i>	<i>2x20P</i>	<i>2</i>

## Precautions

1. *The testing (debugging) and installation should be done by the qualified professionals*
2. *Anti-Static, Water-Proof and Dust-Proof Require*