

Date: 2022-03-16  
Revision: V01.5

## Product Specification



# PRODUCT SPECIFICATION

FCCID: 2BQK4-FT101N100TC

Customer: Volkswagen  
Product Name: 10.1inch A311D OF EV Charging Station  
Supplier Product Number: 1010502141  
Customer Product Number: 139 919 603 B

Approved	Checked	Prepared
Customer Approval		

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## SPECIFICATION REVISION RECORD

NO.	Version	Date	Summary of Changes	Sig
0	V00	12.11.2020	Preliminary	R.F.
1	V00.1	02.12.2020	Updated Product Drawing	R.F.
2	V00.2	02.12.2020	Reduced Thickness, Changed Temp. Range	R.F.
3	V00.3	16.12.2020	Updated Supplier Product Number	R.F.
4	V00.4	25.02.2021	Added Packing Dimensions	R.F.
5	V01.0	07.04.2021	Added Power Consumption	R.F.
6	V01.1	28.05.2021	New tolerances for plastic case	R.F.
7	V01.2	04.06.2021	Removed IR Protection	R.F.
8	V01.3	06.07.2021	Changed Customer Product Number (revision A)	R.F.
9	V01.4	09.07.2021	Adapted Label Design according to new customer requirement	R.F.
10	V01.5	16.03.2022	Changed Customer Product Number (revision B) New Supplier Number on label	R.F.
<Remarks>				



## **1. General Description**

### **1.1. Overview**

The product is a 10.1inch embedded touch PC with a A311D processor from Amlogic and optical bonding. The display (BOE RS101WXM-GE10) is a high brightness industrial module.

The touch PC will get installed by the customer into a charging station for electric vehicles. The application is outdoor.

## 2. Features and Specification

### 2.1. Features

Items		Specifications	Note
1.	Product Size	10.1inch	
2.	Product Setup	CL+ITO+OB+LCD	(1)
3.	Bondline	1.1±0.3 mm	
4.	Product Thickness	41.6mm	
5.	Alignment Tolerance	Optical Center Alignment	(2)
6.	Surface Luminance (White)	Min. 800 cd/m <sup>2</sup>	(3)
7.	Brightness Uniformity	Min. 70% Typ. 75%	
8.	Environmental Temperature Range (Operation)	-20°C ~ +50°C, 20% ~ 80% RH	
9.	Storage Temperature Range	-20°C ~ +50°C, 20% ~ 80% RH	
10.	Electrostatic Discharge (Non-Operational)	Air: 150 pF, 330Ω, 15 KV Contact: 150 pF, 330Ω, 8 KV	
11.	IP Protection	IP65 front; IP40 back	
12.	IK Protection	IK08	
13.	PC	Embedded A311D	
14.	Accessories	Ambient Light Sensor	
		Power Cable	(4)

Note (1): CL:= Cover Lens; ITO := Touch Sensor; OB := Optical Bonding; LCD := Display

Note (2): Alignment

Alignment will be done visually. Acceptance criteria is a not seeable display metal bezel in a distance of 200cm and the resulting viewing angle (see chapter5).

Note (3): Brightness

The original display surface luminance was reduced by the transparency of cover glass as well as the IR protection foil. The resulting product brightness will be the display luminance multiplied with the glass and IF foil transparency.

$$L = L_D * T_G * T_{IR}$$

Note (4): Power Cable

The power cable has a barrel connector on one side and an open end on the other side. It does not contain a power supply.

## 2.2. Display Specification

Item	Specification	Unit
Active Screen Size	10.1	Inch
Display Area	216.96(H) x 135.6(V)	mm
Display Colors	16.2M	Colors
Number of Pixels	1280x800	Pixel
Surface Luminance (White)	Typ. 1200, Min. 1000	cd/m <sup>2</sup>
Horizontal Viewing Angle	Typ. ±85, Min. ±80	degree
Vertical Viewing Angle	Typ. ±85, Min. ±80	degree
Pixel Pitch	56.5(H) x 169.5(W)	μm
Pixel Arrangement	RGB vertical stripe	
Display Operation Mode	Normally Black	

## 2.3. Touch Panel Specification

Items		Specifications	Note
1.	TP Input Method	Finger or Capacitive Stylus	
2.	Touch Controller	EXC80W46	EETI
3.	Multitouch	10 fingers	
4.	Active Area	219.76 x 138.40	
5.	TP Sensor Channels	RX: 34	Based on WIN8 definition ppi (Pixel per inch)
		TX: 21	
6.	TP Accuracy	Within 2.5mm each target	
7.	TP Resolution	25ppi (Min.)	
8.	Transparency AG	≥80%	Shimadzu
	Gloss	70% - 100%, 60°	BYK-Gardner
	Haze	3 - 5%	
9.	TP Cover Lens	RAL9005	PANTONE
10.	TP Cover Lens	Chemically Strengthened	

## 2.4. Case Specification

Items		Specifications	Note
1.	Type	Open Frame	
2.	Material	Aluminum Front / Plastic Back	
3.	Powder Coating Color	RAL9004	Black

## 2.5. Electrical Characteristics

Items		Symbol	Specifications			Unit
			Min.	Typ.	Max	
1.	Power Supply Input Voltage	V <sub>DD</sub>	8	12	18	[V]
2.	Power Supply Input Current	I <sub>DD</sub>	--	0.8	1.2	[A]
3.	Power Consumption	P <sub>C</sub>	--	10.1	15	[W]
4.	LED Life Time	LT <sub>LED</sub>	30,000	--	--	[h]

## 2.6. PC Specification

### 2.6.1. General Specification

Item	Specification
PC Processor	Amlogic A311D 6-core ARM
Chipset	Cortex-A73x4+Cortex-A53x2
Graphic GPU	Mali G52 MP4
Audio	Integrated HI-FI 100dB Audio Codec Dual analog mic, 2x6W amplifier
Internal Memory	4GB DDR3
Hard Drive Storage	16GB eMMC Flash
Network	10/100Mbit Network
Preinstalled OS	Standard: Android 9.0 (Linux 4.9) / In future: Android 10.0 (Linux 5.9)
Default Language Setting	German

### 2.6.2. External Connectors

Item	Specification
Screwable DC-IN	1 x 8 - 18V DC-IN
USB	1x USB OTG 2.0, 2x USB 2.0
Video	1x HDMI
LAN	1x 10/100nitnitMbit RJ45 Port
Serial	1x RS232
Expansion Slot	1x microSD-card slot

### 3. Environmental Characteristics

Items		Specifications	
		Temperature	Humidity (Non Condensing)
1.	Environmental (Operating) Temperature Range	-20 to +50°C	20%~80% RH
2.	Storage Temperature Range	-20 to +50°C	20%~80% RH

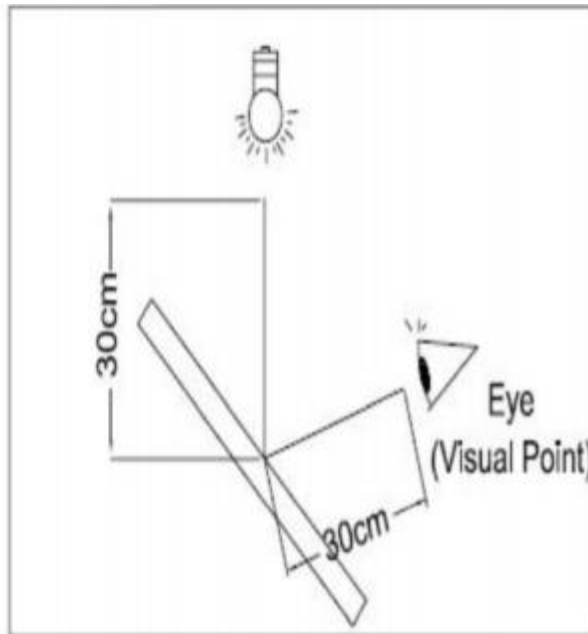
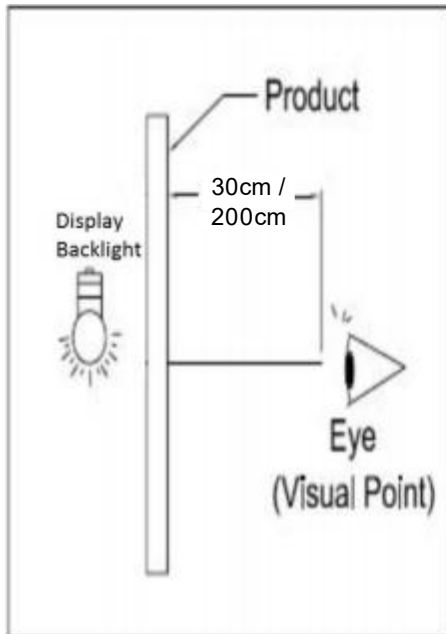
## 4. Mechanical Characteristics

Items		Conditions	Pass Criteria
Cover Glass	Thickness	1.1mm	
Touch Panel	Ball Drop Test	500g $\pm$ 2g 120cm height	One drop test on each of the 5 selected points, No damage
	Hardness	Pencil : 7H	Hardness $\geq$ 7H
	Hitting Life	By Cap. Stylus with soft pen head	No damaged at hitting force $\leq$ 5gf/Cycle, touch times $\leq$ 100million
FPC/COF Reliability	Direction of peeling off	90°	Strength $\geq$ 500gf/cm
	Speed of Pulling out	50cm/min	

## 5. Cosmetic Inspection

### 5.1. *Inspection Environment Conditions*

1. The touch panel has to be inspected at a clean room of at least class 10,000.
2. The visual inspection environment should be set at 20 to 25°C and 25% to 75% humidity.
3. The illumination to perform cosmetic inspection should be 800~1000Lux with fluorescent light.
4. During visual inspection, the distance between eyes of inspectors and the touch panel should be at least 30±5cm.
5. During visual inspection, the viewing angle of the inspector's eye to the product surface should be 45±10 degree.
6. Recommend Visual inspection time is 25±5 second per piece.
7. The visual inspection shall be performed in a distance of 30cm with the display turned on and a 28W lamp illuminating the surface.
8. The alignment shall be checked in a distance of 200cm. From there the display metal bezel shall not be seeable.



## 5.2. Defect Definition

**Critical defect:** Product features are seriously not in compliance with the customer requirements / requirements of laws and regulations, HSF (Reduction of harmful substances), a nonconformity of property and personnel injury, or the product loses its basic function.

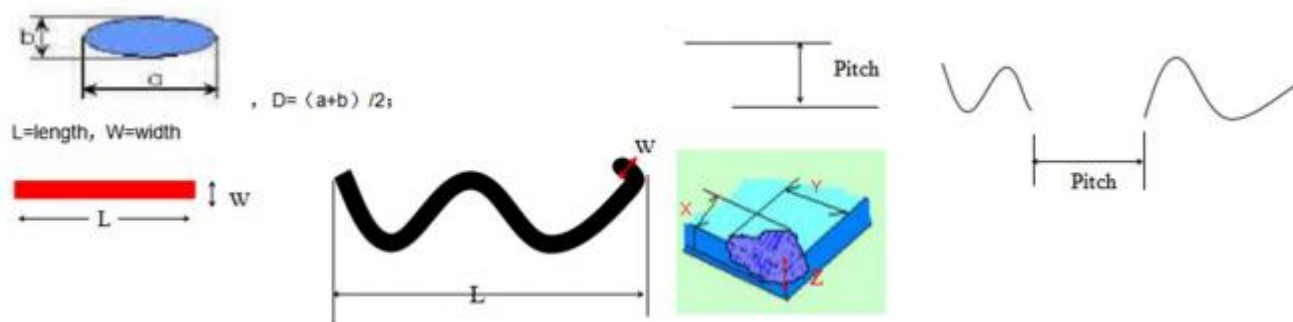
**Major defect:** Product features don't meet expected functional requirements.

**Minor defect:** Product features don't meet expected functional requirements, but don't affect basic function which might reduce the customer satisfaction.

**Center area:** Divide the length and width into 4 equal parts, the center of 2 equal parts.

**Printing Area:** The ink area around the glass viewing area.

Code	Code Identify	Code	Code Identify
N	quantity (pcs)	D	diameter (mm)
L	length (mm)	H	depth (mm)
W	width (mm)	DS	distance (mm)
S	square (mm <sup>2</sup> )		



D: dot and circle defect diameter,  $D = (\text{length} + \text{width}) / 2$ .

DS: distance between two defects (also called pitch)

W: the width of linear defects

L: the length of linear defects

N: Quantity of defect

T: Thickness

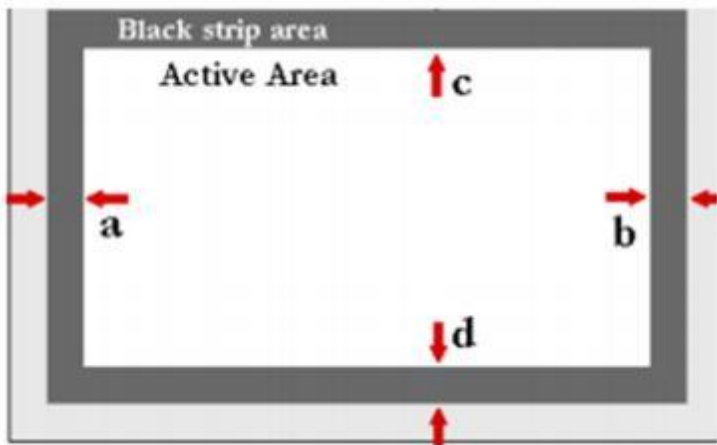
Note: linear defect judge by length and width, but when bend over 180°, judge by dot defect.

### 5.3. *Cosmetic Specification*

item	Cosmetic Defect Definition			Inspect. Tool	Defect level
1.	Dot Defects (Bubble/Fiber/Particle/Spot/Dent/Nick)	Defect	Number of defects allowed	Film ruler	Major
		Bright spot	0		
		Dark spot	3		
		Pitch	0		
		Spotted defects such as bright spots and bubbles other than bright spots and dark spots			
		D≤0.3	ignore		
		0.3<D≤0.6	2		
		0.6<D≤1.0	0		
		1.0<D≤1.3	0		
		1.0<D≤1.5	0		
		Coating	Reference visual area standard test		
		Dot defects	6		
2.	Linear Defects (Scratch/Scrub/Fiber/Particle)	Defect	Number of defects allowed	Film ruler	Major
		Scratch/Scrub Non-Sensible	W≤0.15, L≤10mm, N≤4		
		Scratch/Scrub	W≤0.05, L≤3mm, N≤1		
		Combined	N≤4		

Note :

1. More than 1/2 like RGB cells are treated as one bright spot and dark spot. Two adjacent RGB defects are treated as 1 pair of dark spot 2 points; dark spot spacing Pitch≥15mm ;
2. Any two-spot spacing of the above dot defects Pitch≥50mm, do not allow dense dot defects.

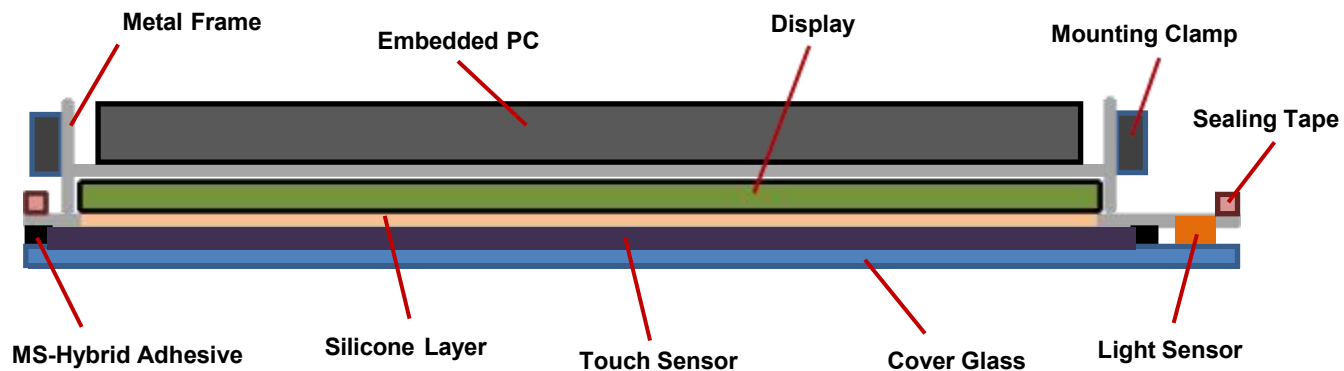
Item	Cosmetic Defect Definition		Inspect. Tool	Defect level
3.	Polarized glass is damaged	1. Corner defect: $X < 1.5\text{mm}$ , $Y < 1.5\text{mm}$ , $Z < 1/2T$ , does not affect the silver coating 2. Edge defect: $X < 1.5\text{mm}$ , $Y < 1.5\text{mm}$ , $Z < 1/2T$ , does not affect the silver coating 3. Cracks are not allowed Note: T is glass thickness. Corner and edge defects only in area B. Can't be seen in area A.	Film ruler	Maj
4.	Surface defect	1. The dirt that cannot be wiped on the surface is judged according to the point defect standard. 2. Blocky imprints and blocky stains that cannot be wiped are not allowed on the surface.	By eyes	Maj
5.	FPC damage	FPC has no sharp breaks, creases should not be white, edges are burr-free, and the surface shall not be oxidized.	By eyes	Maj
6.	Window offset	The LCD visible area is centered with the black mask. The offset shall stay within $a-b < 0.5\text{mm}$ and $c-d < 0.5\text{mm}$ 	Film ruler	Maj
7.	Mura	Not allowed	eye	Maj
8.	Delamination	Not allowed	eye	Cri
9.	Color shift	Not visible with 8% ND Filter	ND Filter	Maj
10.	Bur in effect	A. Short period burn in effect Not visible with 8% ND filter. After the operation mode the previous screen disappears for 5 seconds. B. Long period burns in effect Not visible with 8% ND filter at $0^\circ$ viewing angle.	ND Filter	Maj

## 6. Cautions

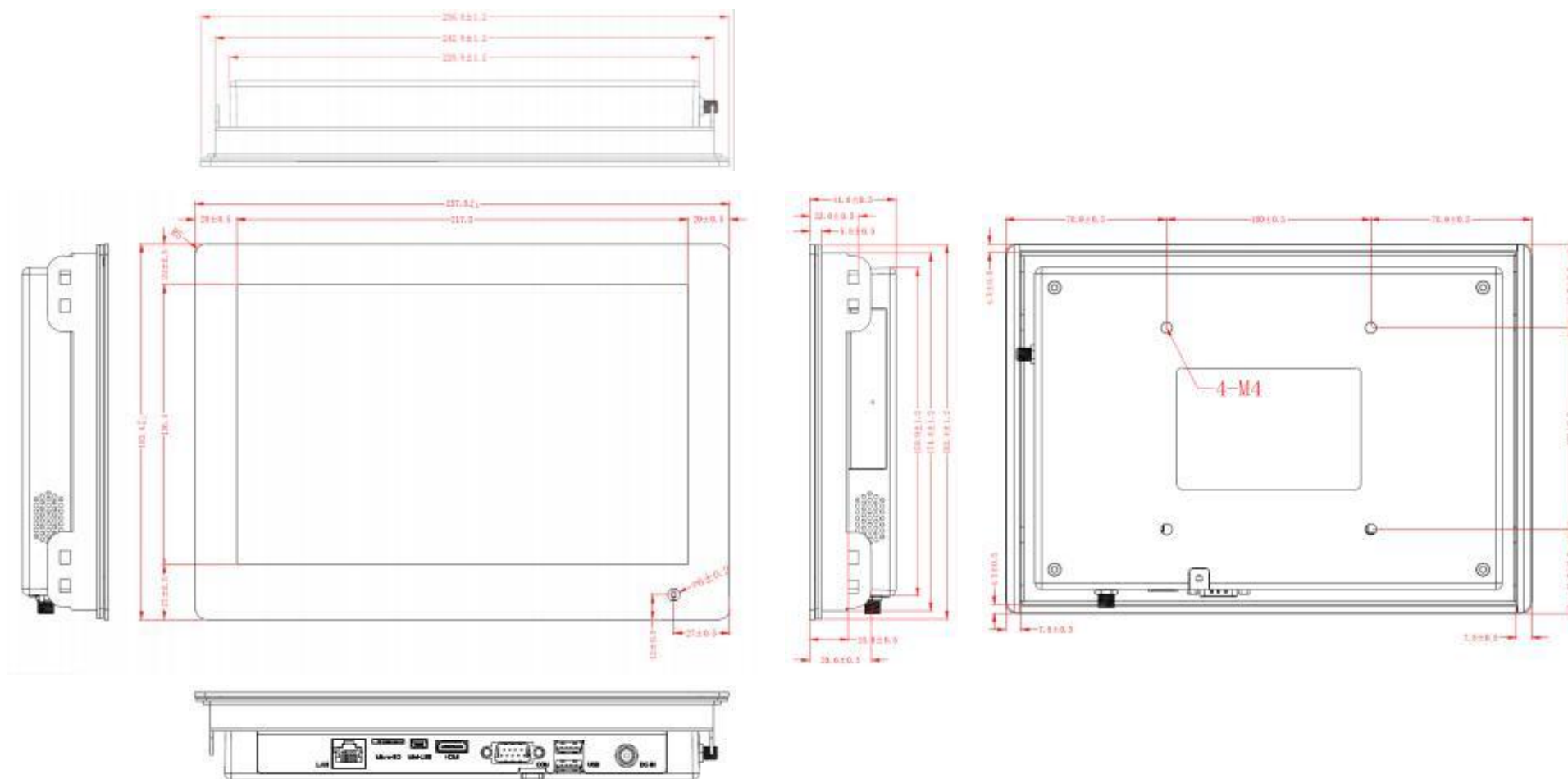
Items	Explanation
Storage	<ol style="list-style-type: none"><li>1. The product should be stored under the environment temperature and humidity as suggested.</li><li>2. Do not store a product in direct sunlight.</li><li>3. After 3 Month of storage the protective film has to be removed and the surface shall be cleaned using <b>Peroxide Multi Surface Cleaner and Disinfectant</b> from Ecolab or a similar cleanser. Longer storage without cleaning might cause permanent pollution.</li></ol>
Handling	<ol style="list-style-type: none"><li>1. Unpack the carton with the printed arrow pointing up.</li><li>2. Hold a touch panel body instead of the FPC/COF all the time.</li><li>3. Avoid pollution on the sensor surface after removing the protect film before assembly.</li></ol>
Cleaning	<ol style="list-style-type: none"><li>1. Do not use chemical solvent, acidic or alkali solution, for cleaning.</li><li>2. Use neutral detergent or isopropyl alcohol to clean touch panel.</li></ol>
Assembly	<ol style="list-style-type: none"><li>1. Do not apply excessive force in bending or twisting touch panel during assembly.</li><li>2. Excessive force or strain to the FPC or COF is prohibited.</li></ol>
Operation	<ol style="list-style-type: none"><li>1. The product must be operated in a stable environment. Abrupt change of the environmental conditions may cause the malfunction of the panel.</li><li>2. In order to guarantee stable functions of a touch panel, please make sure that system is grounded or a power adapter is connected correctly to ground (Connection of Ground to Earth Ground is suggested).</li><li>3. Do not plug or unplug the interface connector while the touch panel is operating.</li><li>4. Do not use sharp edged or hard objects to hit touch panel during operation.</li></ol>
Others	<ol style="list-style-type: none"><li>1. faytech provides 24 months product guarantee under normal operation conditions.</li><li>2. Avoid high voltage and/or static charge being applied to touch module.</li><li>3. Keep the panel surface clean. Prevent any kind of adhesive applied on the surface.</li><li>4. It is support 10 fingers touch only and it would be malfunction when over 10 fingers touch together.</li><li>6. Do not put any metal or electrically conducting materials on the touch screen during operation.</li></ol>

## 7. Mechanical Drawings

### 7.1. *Schematic Stack Up*



## 7.2. Product Drawing



## 8. Packaging

Each monitor is protected by a precut foam and is packed separately into a single box with a label showing the product serial number on the outside.

Additionally, each box gets packed into an additional shipping box. On the outside this package also has label showing the product serial number. Each shipping box contains 5 devices.

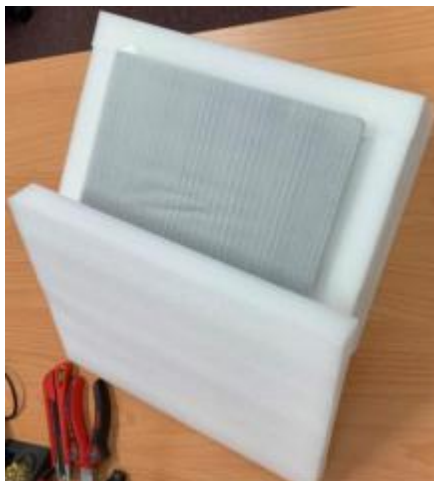
Shipping Box Dimensions: 67cm x 35.5cm x 33cm

Shipping Box Weight: 10.5kg



Inner Box Dimensions: 34cm x 13cm x 32cm

Inner Box Weight: 2.1kg



The shipping boxes will get shipped on pallets. Each pallet carries 6 boxes with each 5 devices (in total 40pcs). The pallet has the following parameters.

Weight: 63kg  
Height: 106.5cm  
Length: 120cm  
Width: 80cm

## 9. Labeling

The following product label is added to the product back case.

**faytech** CHN-NAV No.:  GER-NAV No.:



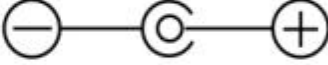
**Product Name:**

**Article No.:**


**Serial No.:** 16046747


This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:  
(1) this device may not cause harmful interference.  
And (2) this device must accept any interference received, including interference that may cause undesired operation.

**faytech AG**  
 Bischhäuser Aue 10, 37213 Witzenhausen, Germany

**INPUT 12 V === 2000 mA.max**

  
 To reduce risk of electric shock,  
do not remove cover of back.  
No user serviceable parts inside.

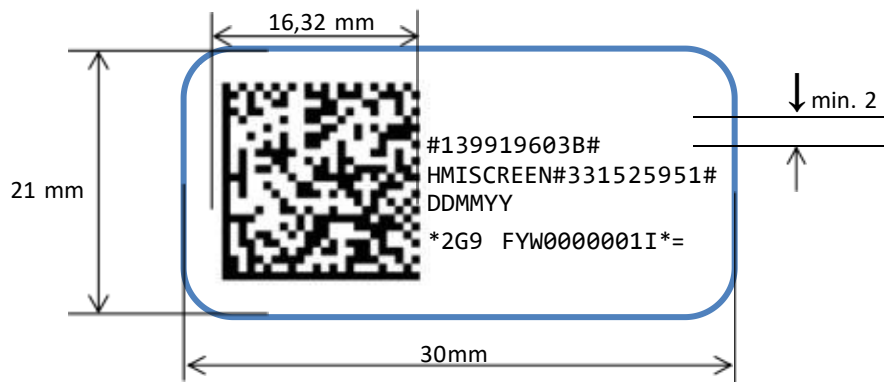
  
 Refer servicing to qualified personnel.

**GERMAN BRAND,MADE IN CHINA**

**Faytech Tech.Co.,Ltd.**

**www.faytech.com**

Additionally, the following label with QR code is added next to the product label.



The QR code is generated according to the customer's requirements

Data Field	#	Part Number + Color coding	#	Part Type	#	DUNS-Nr.	#	Manufacturing Date	*	Assembly Data	*	=	Additional Data	Σ Max
Position	1	14	1	9	1	9	1	6	1	15	1	1	5	65
Syntax	#	V V V H H H E E X X F F F	#	T T T T T T T T T	#	D D D D D D D D D	#	T T M M J J	*	B G R H H H L L L L L L L P	*	=	Z Z Z Z Z	



## 10. APPENDIX

### 10.1. CE and UKCA- Declaration of Conformity

Hereby faytech declares that the equipment is in compliance with the essential requirements and other relevant regulations of the directives 2014/30/EU, 2014/35/EU, 2011/65/EU, 2015/863 RoHS, UK SI 2016/1091 and UKSI 2016/1101.

The long version of the CE Declaration of Conformity can be found in English at: [www.faytech.com/ce](http://www.faytech.com/ce)

### 10.2. FCC ID - Compliance & Warning Statements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.