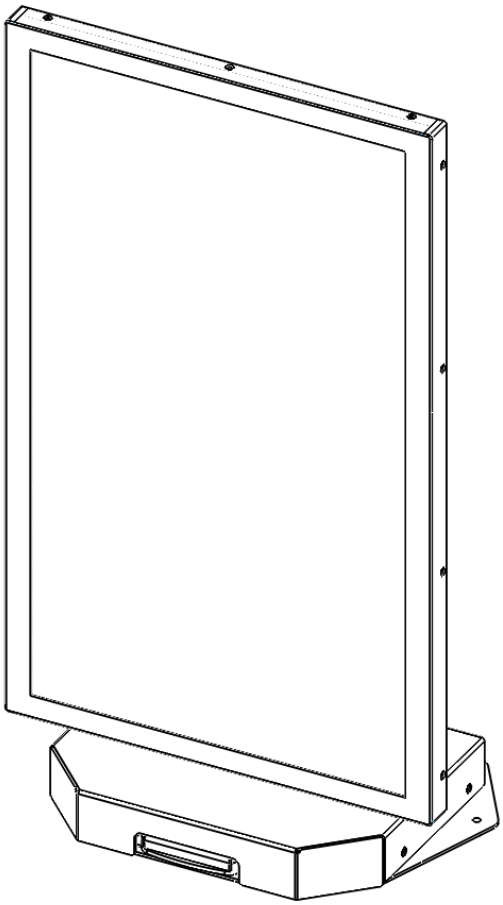
SID-21V-Z37-A1R



AVALUE TECHNOLOGY, INC.

April 20th, 2016

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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Avalue Technology's PRODUCTS ARE NOT FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE PRIOR WRITTEN APPROVAL OF Avalue Technology Inc.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Customer Services and Support

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, please call Avalue Technology through the number provided below. Our engineers are well trained and are ready to give you the support you need to get the most from your Avalue products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the

installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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Service: **support@avalue-usa.com**

Product Warranty

Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.

3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.

4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

CONTENTS

REVISION HISTORY

Revision Number	Descriptions	Date
1.0	First Release	April 20th, 2016

1. GETTING STARTED

1.1 SAFETY PRECAUTION

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges.

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 WHAT'S INCLUDED

Before you begin installing your SID-21V-Z37-A1R, please make sure that the following materials have been shipped:

- 1 x SID-21V-Z37-A1R Unit, mounted on Stand w/ Card Reader
- 1 x ACC-BAT-3SP1-01R
- 1 x 6ft. Power Cord

2. TECHNICAL SPECIFICATIONS

2.1 SYSTEM SPECIFICATIONS

Component	
CPU	Intel Atom Z3735F
Memory	2GB DDR3L
Adapter	+19V DC (65W)
Microphone	1x MIC interface
Operating System	Android 4.4
Storage	
Other Storage Device	32GB eMMC
Panel	
LCD Panel Size	21.5”
Resolution	1920x1080
Luminance	250 nits
Touch Type	PCAP
Viewing Angle	89 (U), 89 (D), 89 (L), 89 (R)
External I/O	
USB Port	4x USB 2.0
Video Port	1x HDMI
Audio Port	1x Headphone Jack
LAN Port	1x 10/100 Ethernet
Peripheral Devices	1x Smart Card Reader
Expansion Slots	1x Micro SD slot
Mechanical	
Power Type	19V DC input
Power Connector Type	DC jack Li-ion Battery (Optional)
Unit Dimension	
Unit Weight	20 lbs. (Including Battery)
Shipping Dimension	26 x 15 x 11”
Shipping Weight	25 lbs. (Including Battery)
Color	Black
Reliability	
EMI Test	CE, FCC class B
Operating Temperature	0°C ~ 40°C
Operating Humidity	0%~90% relative humidity, non-condensing
Storage Temperature	-20°C ~ 60°C

2.2 System Connector Overview

2.2.1 Top Cover Connectors

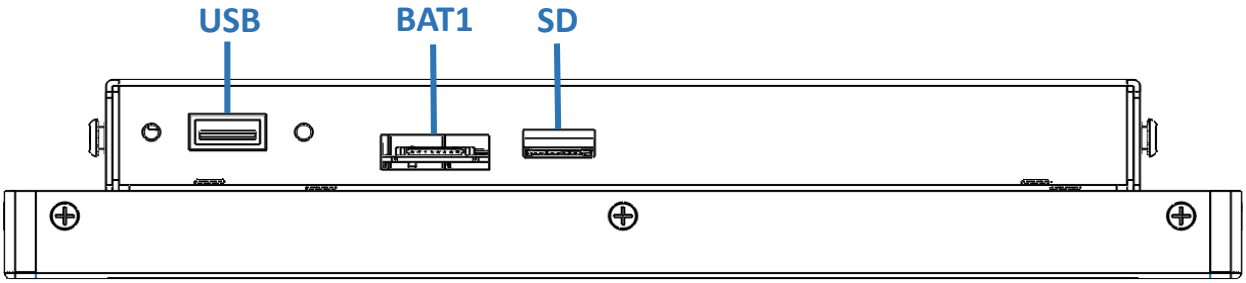


Fig. 2A: System Top View, No Cover

2.2.2 Bottom Cover Connectors

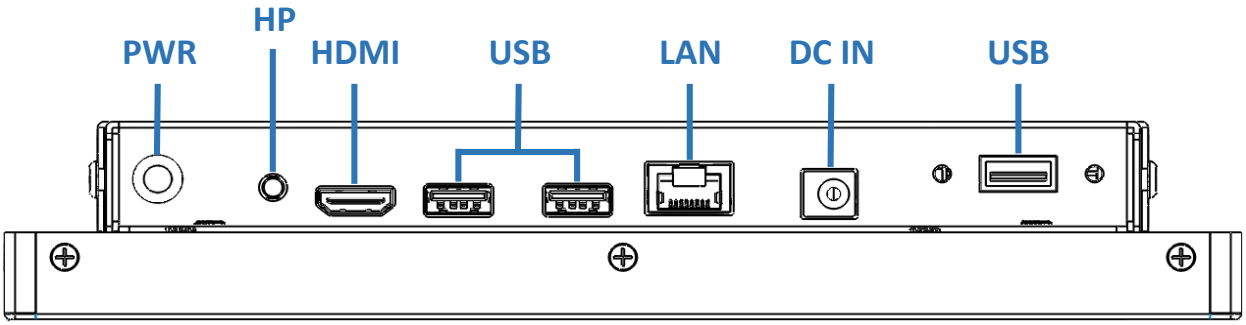


Fig. 2B: System Bottom View, No Cover

2.2.3 Battery Connections

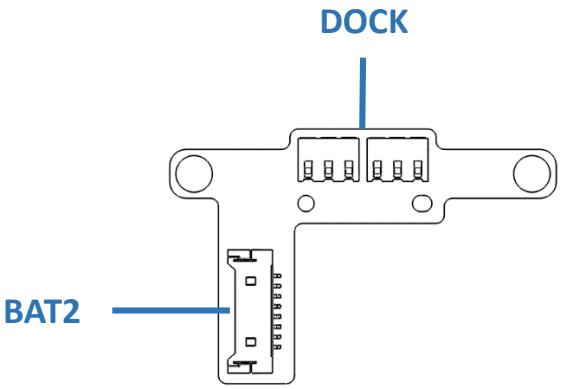


Fig. 2C: Battery Board, Top View

2.2.4 Connector Overview

Label	
PWR	Power Button
HP	Audio line-out connector
HDMI	HDMI Connector
USB	4 x USB 2.0 Connector
LAN	RJ-45 Ethernet
DC IN	DC Power-In Connector
SD	Micro SD Card Slow
BAT1	Motherboard Battery Connector
BAT2	Auxiliary Battery Board Battery Connector
DOCK	Optional Battery Docking Connector

2.3 Battery Specifications (Optional)

2.3.1 General Specifications

General	
Battery Model Number	ACC-BAT-3S1P-01R
Battery Cell Type	Li-Ion Rechargeable Cell
Nominal Voltage	AVG. 10.8V
Charging Voltage	MAX. 12.6V
Typical Capacity	2400 mAh 25ºC±2ºC
Minimum Capacity	2215 mAh at 25ºC, by 0.2C 443 mA discharge
Standard Charging	12.6 V / CC: 0.5C, 1106 mA at 25ºC ± 2ºC Terminal charge condition: <117 mA
Maximum Charging	12.6 V / CC: 0.9C, 2000 mA at 25ºC ± 2ºC Terminal charge condition: <117 mA Charge rates >0.86 C are NOT recommended.
Pre-Charge Current	128 mA (When cell voltage under 3.0V or temperature under 10 ºC)
Standard Continuous Discharge Current	0.2 C 443 mA Continuous discharging to 8.25 V
Maximum Continuous Discharge Current	1.355 C 3000 mA Continuous discharging to 8.25 V
Charge Termination Condition	When the pack voltage is 12.6 V, and the charge current is less than or equal to 117 mA the charging should be terminated.

	Relative State Of Charge = 100 % When the Relative State Of Charge is under 95%, the pack can re-start charging.
Discharge Termination Condition	When pack voltage is less than or equal to 8.25 V, the discharging should be terminated.
Operating Temperature	Charge: 0 ºC~ 45 ºC, 85%RH Max Discharge -10 ºC~ 60 ºC, 85%RH Max
Storage Temperature	If the battery packs are subject to storage for such a long term, it is recommended to recharge the battery pack periodically, every two-months. 1 Month -20~60 ºC, 85 %RH Max 3 Months -20~45 ºC, 85 %RH Max 1 Year -20~20 ºC, 85 %RH Max
Thermistor	NTC 10K B=3435 @25℃
FCC Range	1993.5 mAh to 2784 mAh for 0.2C Charge and Discharge at 25 ºC
Electrical	
Life Cycle	Discharge capacity (500) Cycle is greater than or equal to 80 % 1772 mAh Ambiance Temp: 25±3ºC. A battery unit shall be repeated 500 charge/discharge cycles, charged at CC-CV 1108 mA - 12.6 V. cut-off 117 mAh discharged at 1108 mA. Continuously down to 8.25 V. cut-off voltage. Remark: Rest 20 min after charge Rest 20 min after discharge
ESD Requirement	Contact discharge ±4KV, Air discharge ±8KV
Dynamic Test	High level: 3000 mA Low level: 300 mA Discharged continuously down to 8.25 V Cut-off Voltage No rupture, fire, smoke, explosion, leakage and protection.

2.3.2 BATTERY HANDLING

To ensure safety and maximum life of your product please follow the precautions outlined below:

- Avoid shorting the battery
- Do not immerse in water.

- Do not disassemble or deform the battery
- Do not expose to, or dispose of the battery in fire.
- Avoid excessive physical shock or vibration.
- Keep out of the reach of children.
- Never use a battery that appears to have suffered abuse.
- Store in a cool, dry, and well-ventilated area.
- Dispose of in accordance with local regulations. Regulations vary for different countries.

3. BATTERY INSTALLATION (OPTIONAL)

3.1 PREPARING THE SYSTEM

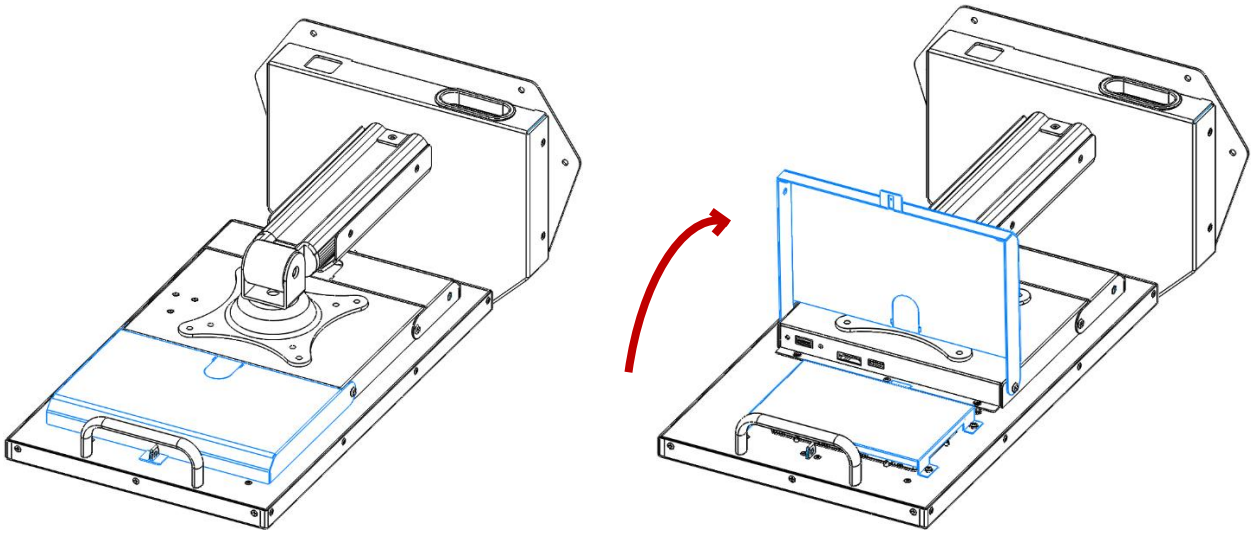


FIG. 3A: SYSTEM ISOMETRIC BACK VIEW, OPENING THE TOP COVER

- Please make sure the unit is unplugged and powered off.
- Lay the unit flat, screen side down, on a smooth surface.
- Locate and open the hinged Top Cover (highlighted in blue).
- Once opened, locate the battery bracket.

3.2 Removing the Battery Bracket

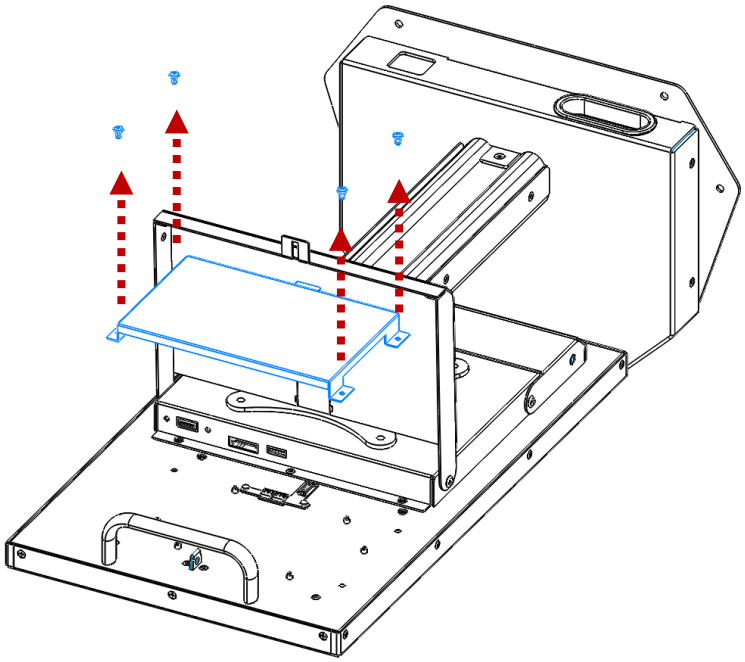


Fig. 3B: Battery Bracket Removal

- Remove the 4 screws (M3x5) that secure the battery bracket to the system.
- Remove the bracket from the system.
- Locate the battery connection board under the bracket.

3.3 Integrating the Battery

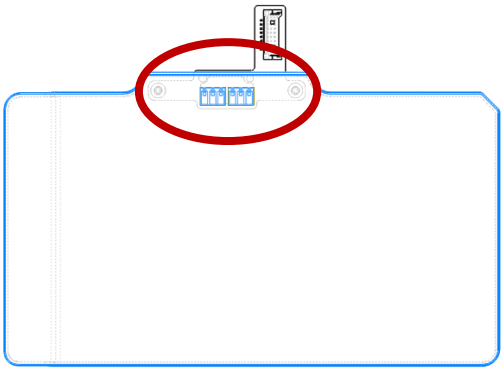


Fig. 3C: Battery mounted on Board

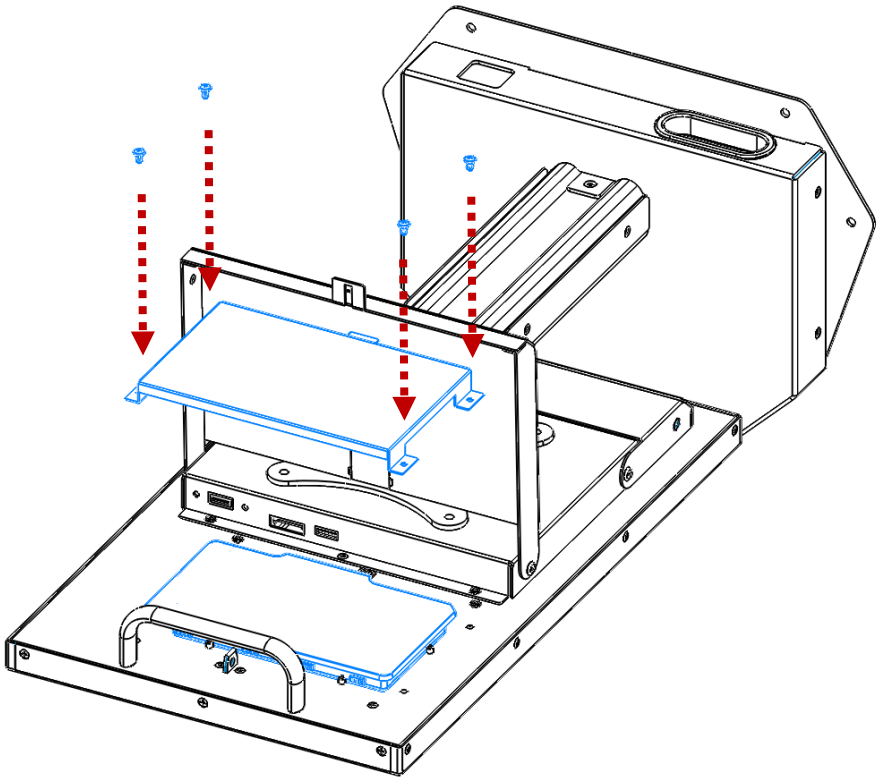


FIG. 3D: BATTERY AND BATTERY BRACKET INSTALLATION

- Place the battery on the DOCK connection on the system with the smooth side up and the tab facing the center of the system. Please make sure that the contacts from the battery to the board are lined up properly (refer to **Fig. 3C** for visual reference).
- Mount the battery bracket to the system using the 4 screws we previously removed.
  NOTE: It may be easier to integrate the battery into the battery bracket first, then mount the bracket on the system.

3.4 COMPLETING THE INSTALLATION

- Once complete, close the top cover. The top cover will secure itself to the system through a magnetic connection.
- The system can now be placed upright on a flat, stable surface.
- Plug in the power cord and turn the system on. Verify the battery is being recognized by the system and is charging in Settings>Battery.

4. Cable Management

4.1 Removing Cable Cover

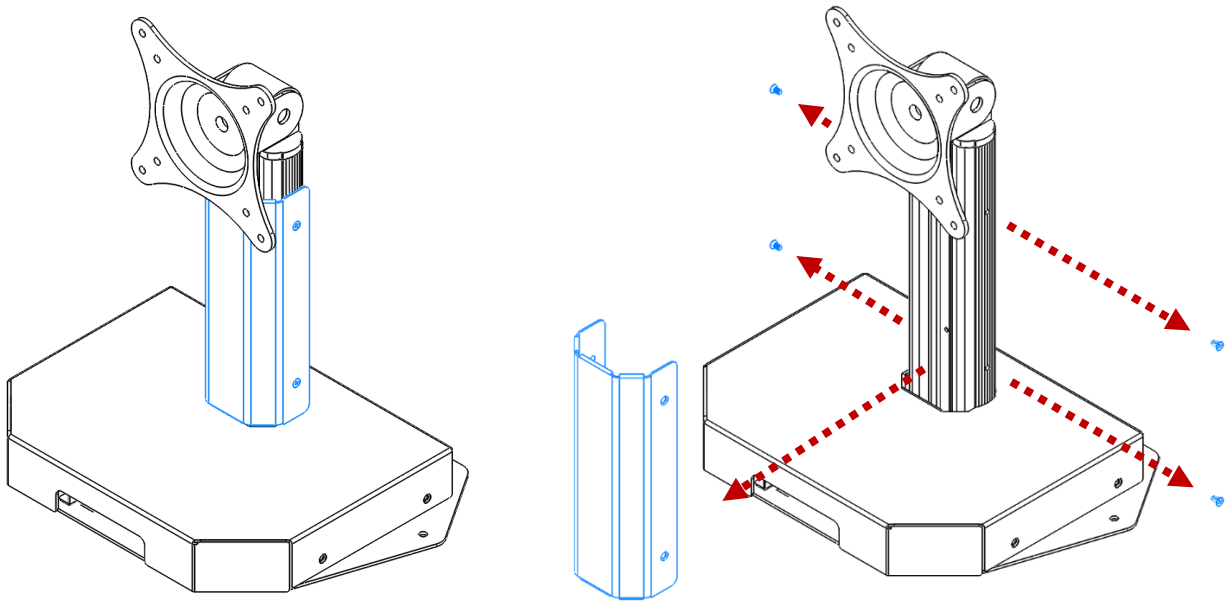


Fig. 4A: Stand Isometric Front View, Removing Cable Cover

- Locate the Cable Cover on the Base Stand (highlighted in blue)
- Remove the 4 screws that keep the cover in place and pull the cover off of the Arm.

4.2 REMOVING THE BASE FROM THE ARM

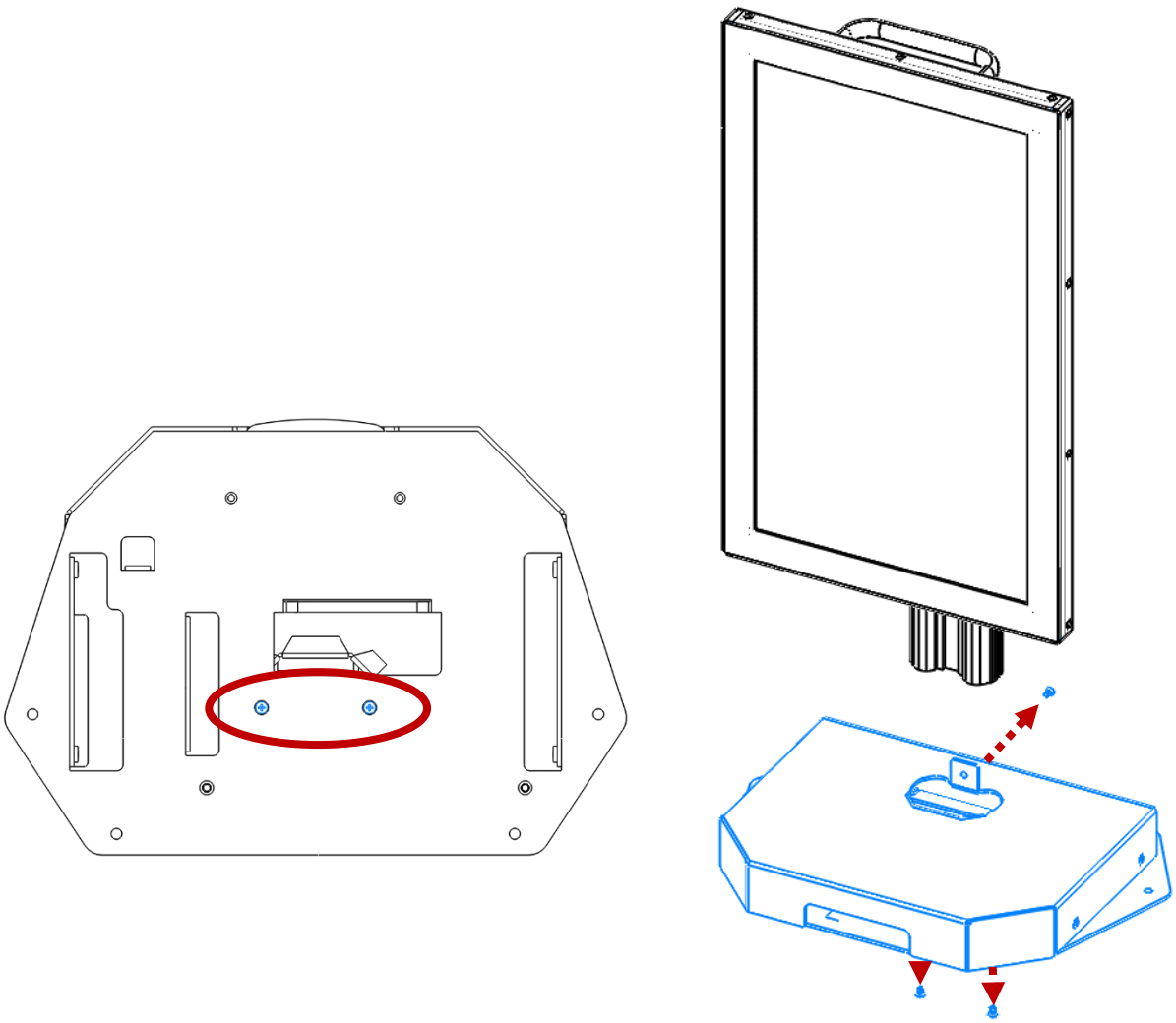


FIG. 4B: BOTTOM AND ISOMETRIC FRONT VIEW, REMOVING BASE FROM ARM

- Locate the 3 screws that hold the Arm to the Base. There are 2 underneath the unit, and 1 along the backside of the arm.
- The arm should slide out of the hole in the base
  NOTE: Please use caution while other cables may be routed through this hole.

4.3 ROUTING THE CABLES THROUGH THE BASE

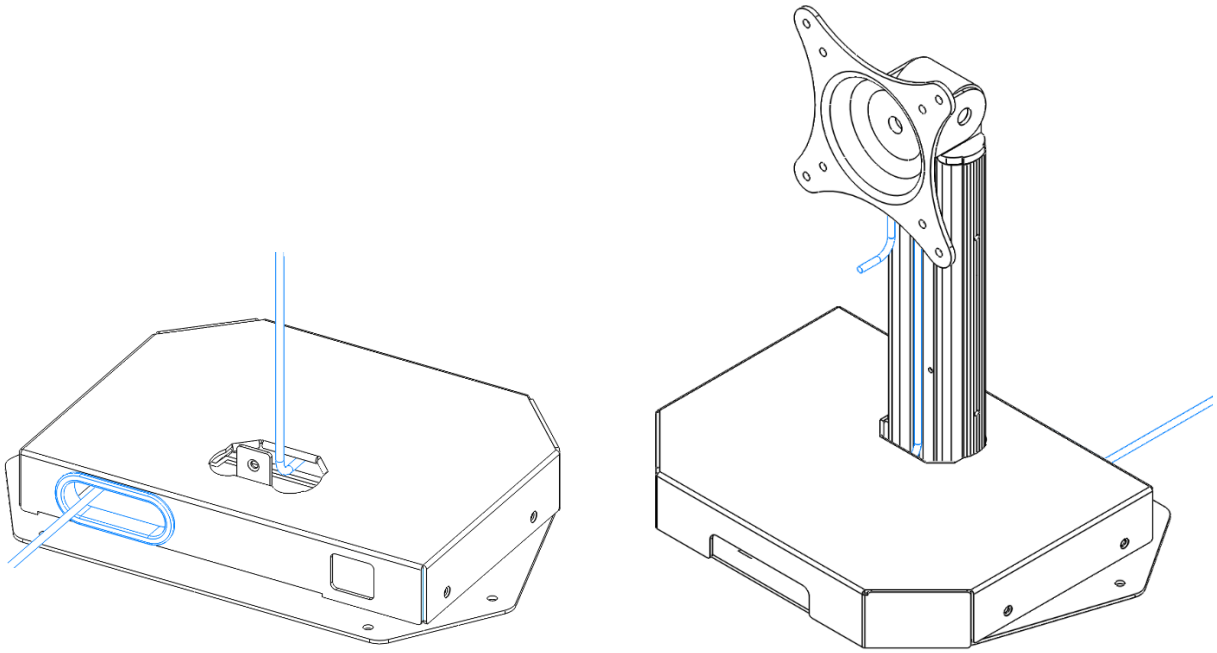


FIG. 4C: CABLE ROUTING THROUGH STAND PASS-THROUGH

- Route the cables through the pass-through hole along the backside of the unit and up through the center hole that the Arm was taken out of. NOTE: This pass-through hole should be lined with a plastic cable bushing to prevent cable wear.
- Gather the cables to the front of the hole, and insert the Arm back into the hole. **Please use caution when doing this and make sure that no cables will be pinched between the bottom of the Arm and the bottom base plate. The cables should run through the pass-through along the back and hug around the arm up the top of the Bases hole opening.**
- Mount the Arm back onto the Base using the 3 screws that were removed earlier.

4.4 CABLE ROUTING ON BOTTOM COVER

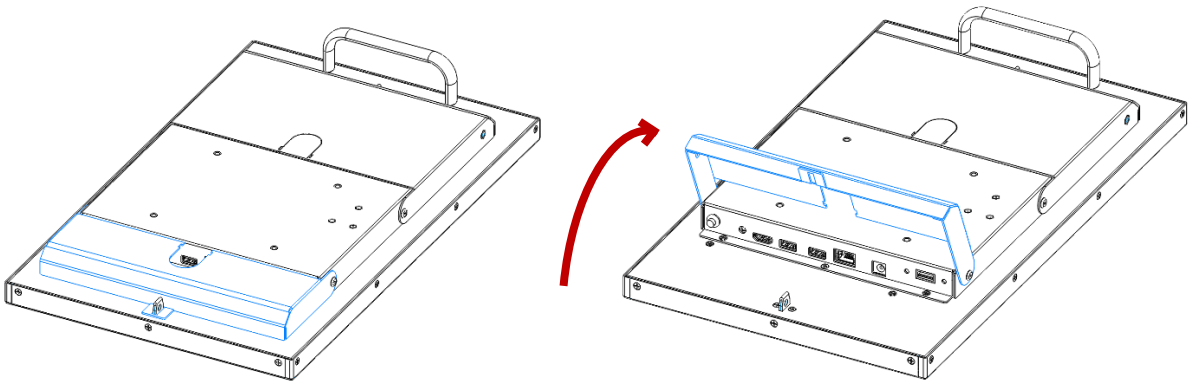


FIG.4D: SYSTEM ISOMETRIC BACK VIEW, OPENING THE BOTTOM COVER

- Locate and open the hinged Bottom Cover (highlighted in blue)

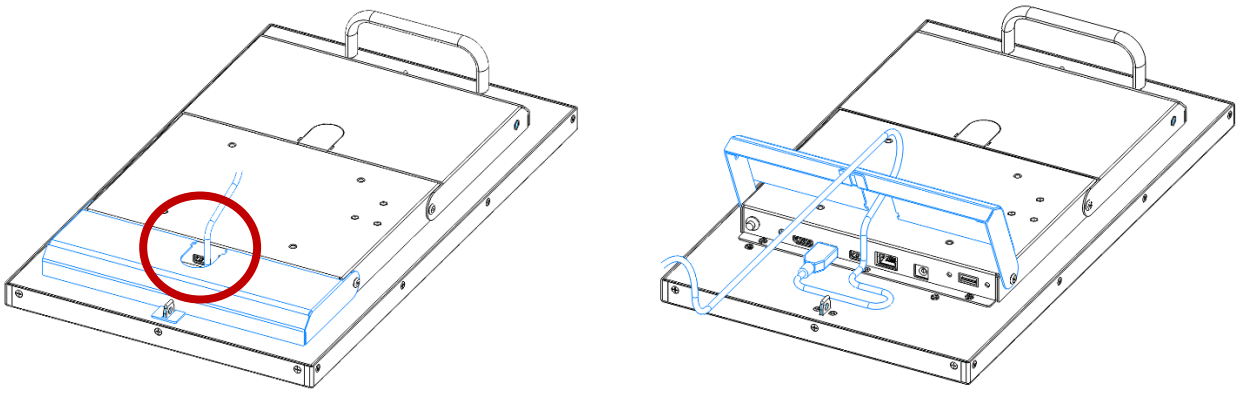


FIG. 4E: SYSTEM ISOMETRIC BACK VIEW, CABLE ROUTING THROUGH BOTTOM COVER

- Route the cables through the cable pass-through hole on the cover and attach the cables to the system's I/O.
  NOTE: This hole should be lined with a plastic cable bushing to prevent wear on the cable. If there is not bushing on the unit, one is available inside the accessory box.
- Close the Bottom Cover. As illustrated in **Fig. 4E**, leave several inches of extra cable slack in the door. This will prevent any strain on the cable if the display was tilted on the mount.

4.5 Completing the Installation

- Once complete, close and lock the Bottom Cover.
- Reinstall the Cable Cover on the Arm. Make sure that all of the cables are not visible and hidden properly behind the Cover.

5. Updating the BIOS

After installing your SID-21V-Z37-A1R assembly, please make sure all of your cables are installed properly. After powering on the unit and verifying the operating system loads, it may be recommended to update the BIOS before initial functional use.

5.1 Preparing the USB Key

To install the most recent BIOS update on the system, please have a USB key at hand, formatted with a FAT32 file system. The most recent BIOS update folder must be downloaded and decompressed on the USB's root folder in order for the system to function properly.

5.2 Booting to the USB Key

Plug the USB key into a USB port of SID-21V and power on the system. Please press "**F12**" repeatedly while the system is turning on to get into the boot manager of the BIOS. Here, please choose the USB Device as the boot device. This will load the EFI shell on the USB key.

5.3 Applying the BIOS Update

Once at the EFI shell, please type in "**fs1:**" to gain access to the USB key. To change directories to the appropriate folder "**\EFI\BOOT**", please use the following commands:

>cd EFI
>cd boot

To Flash the BIOS for Android or Linux, please run command "**BCX11x64.nsh**".
NOTE: Please do not remove power from the system while the BIOS is flashing.

5.4 Loading Optimized Defaults

Once the BIOS has completed updating, the system will reboot automatically. After the system reboots, please press "**F2**" to get into the BIOS Setup Menu. Here, highlight to the following:

"**>Exit>Load Optimized Defaults>Yes> Exit Saving Changes**"

The system will now reboot again to the main Operating System with the correct BIOS revision.

6. Updating The Firmware

After installing your SID-21V-Z37-A1R assembly, please make sure all of your cables are installed properly. After powering on the unit and verifying the operating system loads, it may be recommended to update the Android firmware before initial functional use.

6.1 Preparing the USB Key

To install the most recent Android Firmware on the system, please have a USB key at hand, formatted with a FAT32 file system. The most recent OTA Update file must be downloaded and the compressed folder must be on the USB's root folder in order for the system to function properly.

6.2 Rebooting to Recovery Mode

Power on the SID-21V-Z37-A1R System and load into the Android OS. Navigate to the "**Settings**" page. Scrolling down to the bottom of the page, click on the "**About Tablet**" page. Here, you will find the "**Software Update**" option to click on. Please press the "**Reboot into recovery mode**" button to get into Android recovery mode.

6.3 APPLYING THE UPDATE

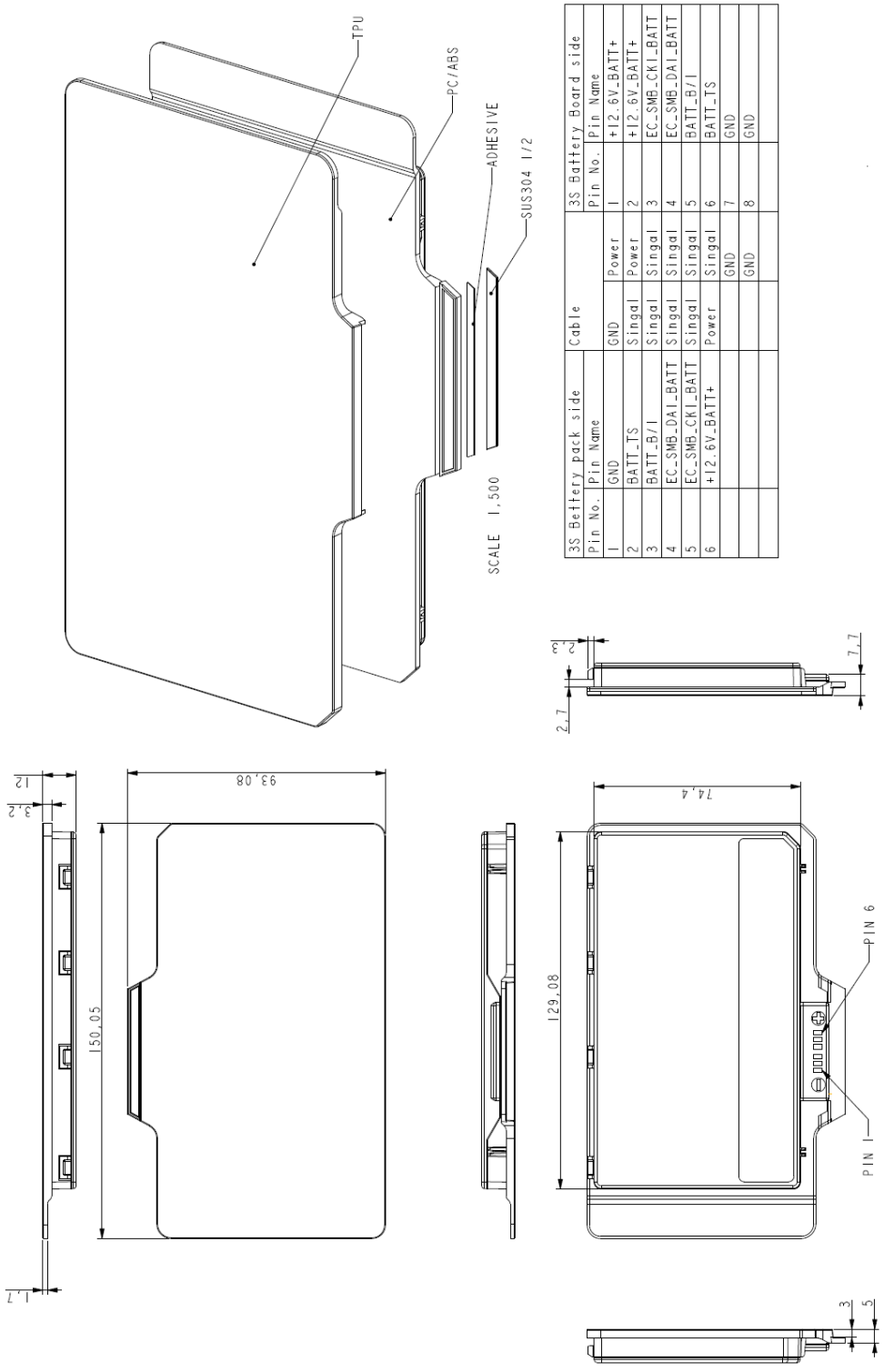
Select the "**Apply update from USB**" option while in the Android system recovery menu. Next, select the most recent OTA image file that was previously copied on USB drive.

6.4 COMPLETING THE UPDATE

After completing the update, the system will return to the Android system recovery menu. Please select "**Reboot system now**" to reboot the system and get into the newly updated Android OS. Please note you may need to unplug USB disk before you reboot the system.

7. MECHANICAL DRAWINGS

7.1 BATTERY DRAWING



3S Battery pack side		Cable	3S Battery Board side	
Pin No.	Pin Name		Pin No.	Pin Name
1	GND	GND	1	+12.6V_BATT+
2	BATT_TS	Singal	2	+12.6V_BATT+
3	BATT_B/I	Singal	3	EC_SMB_CKI_BATT
4	EC_SMB_DAI_BATT	Singal	4	EC_SMB_DAI_BATT
5	EC_SMB_CKI_BATT	Singal	5	BATT_B/I
6	+12.6V_BATT+	Power	6	BATT_TS
		GND	7	GND
		GND	8	GND

7.2 SYSTEM DRAWINGS