SMART DISPLAY MODULE SPECIFICATION

1.85 Inch AI Smart Display with Touch	
Model:	SmartRing Plus
Version:	V1.1
Date:	2026-01-21

Customer Confirmation

Approved by	Notes

REVISION HISTORY

Revision	Date	Contents of Revision Change	Remark
V1.0	20260106	Preliminary release	
V1.1	20260121	Add version description and add a hyperlink to the datasheet	

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1. Product Overview

- ✧ **Main Control Chip**: ESP32-S3-N16R8 (dual-core MCU, integrated with Wi-Fi and Bluetooth BLE5.0, 240MHz main frequency, 520KB SRAM, 8MB PSRAM, 448KB ROM, 16MB Flash).
- ✧ **Display Screen:** 360×360 resolution, capacitive touch.
- ✧ **Module Functions:** Includes LCD display, backlight control, touchscreen control, I2S digital microphone, I2S digital-to-analog conversion, TF card interface, IMU(QMI8658A), and Rechargeable battery.
- ✧ **Development Environment:** Supports secondary development via Arduino IDE, ESP IDE, MicroPython, PlatformIO, etc., and UI development with LVGL.
- ✧ **Manufacturing Process:** CNC-machined casing, delicate and exquisite.
- ✧ **Supports Xiaozhi：** Provide the source code .

2. Product Functions

- Computer secondary screen function (AIDA64): Built-in 5 styles.
- Audio spectrum pickup function.
- MP3 music playback function: Allows users to add MP3 files and decode 320K high-quality MP3.
- Digital photo frame function: Supports user-added photos.
- MJPEG playback function: Enables users to add MJPEG files.
- Balance ball game: Equipped with a gyroscope, controlled via gyroscope sensor.
- Themed clock display function: Defaults to international time zone, adjustable to China time zone.
- Wireless power supply function (supports QI protocol): Achieves true wireless operation when used with a wireless power bank.
- Real - time weather function: obtain weather information after connecting to the Internet via WIFI.
- Subsequent product function upgrades.
- Please transfer to the document for instructions for use：
  - TAIJI VIEWE Pi
  - VIEWE xiaozhi

3. Version control

3.1 Purpose

To standardize the version management of the **SmartRing-Plus Series products**, clarify the core differences between products with different configurations, and ensure that the products can be accurately identified and controlled in all processes including R&D, production, procurement, warehousing, and after-sales service, these version control instructions are specially formulated.

3.2 Description of Core Version Differences

For the two products, SmartRing-Plus-A and SmartRing-Plus-B, **except for the different screen models and supporting initialization parameters, all other hardware specifications (including but not limited to screen size, resolution, color gamut, overall machine structure, core functions, etc.) are completely consistent**. The specific difference information is shown in the following table:

Product Version	Matching Screen Model	Core Difference
SmartRing-Plus-A	VIEWE UE018HV-RB39-A002A	Screen model and corresponding initialization parameters
SmartRing-Plus-B	VIEWE UE018HV-RB39-A004A	Screen model and corresponding initialization parameters

3.3 Version Identification and Recognition Methods

Product Nameplate Identification:

The product packaging will clearly indicate the product version model (**SmartRing-Plus-A / SmartRing-Plus-B**) for intuitive identification.

Firmware:

1. Before leaving the factory, the product shall be burned with the initialization parameter firmware matching the version, and the firmware version number suffix shall distinguish the version:
   (1) SmartRing-Plus-A firmware version suffix: _A
   (2) SmartRing-Plus-B firmware version suffix: _B

Software Update:

2. We will release version-specific sample codes; please select the corresponding reference according to the version during secondary development.

4. Product information

4.1 Brie Information

1) Outline Dimension: ϕ57.6 Round
2) Thickness: 12.2mm
3) Interaction Method: Touch
4) Shell Color: Metallic black/Silver/Customized
5) Power: DC 5V, 1A

System

1) OS: RTOS
2) CPU: ESP32-S3 240Mhz
3) RAM: 8MB
4) Flash: 16MB
5) Interface: UART/USB
6) Support 2.4GHz Wi-Fi、BLE 5、BLE Mesh

For more information on ESP32-S3-R8, please refer to the following link:datasheet_en.pdf(English) or datasheet_cn.pdf(Chinese)

Display

1) Size: 1.85 Inch
2) Resolution: 360 *360
3) Mode: IPS
4) Interface Mode：QSPI
5) Driver IC：ST77916　TP IC：CST816S
6) Brightness: 400 cd/m^2

More information about Display can be found here: **SmartRing-Plus-A** Display Specification.pdf, **SmartRing-Plus-B** Display Specification.pdf

Other

Audio

1) Model：ES8311
2) For more information：datasheet

IMU

1) Model：QMI8658A
2) For more information：datasheet

Power amplifier

1) Model：NS4150B
2) For more information：datasheet

Battery

1) Voltage: 3.7V
2) Capacity: 600mAh

MIC

1) Model：ZTS6216
2) For more information：datasheet

Horn

1) Impedance/Power: 8Ω / 1W
2) Terminal spacing: 1.25

4.2 Display Information

Features	Details	Unit
Display Size(Diagonal)	1.85	inch
LCD type	α-Si TFT	-
Display Mode	IPS /Transmissive / Normally Black	-
Resolution	360RGB x 360	-
Active Area	45.68(H)×45.68(V)	mm
Module Outline	48.08(H) ×49.95(V)×2.12(T)	mm
Display Colors	262K	-
Interface	QSPI	-
Driver IC	77916	-
Touch IC	CST816S	-
TP Viewing Area	46.08(H)×46.08(V)	mm
TP Outline(assembly)	55(H) ×55(V)×0.7(T)	mm
Luminance on surface	400	cd/m²
View Direction	All	Best image
Contrast ratio	1200:1	
Color gamut	70%	
PPI	200	-
Window effect	No one black	-
Cover plate surface effect	AF	-
Operating Temperature	-20～70	ºC
Storage Temperature	-30～80	ºC
Weight	TBD	g
connector	OK-F302-39115	

4.3 PIN Information

ESP Pin NO.	FUNCTION
GPIO0	BOOT/Power
GPIO1	BAT_ADC
GPIO2	SDMMC_D1
GPIO3	SDMMC_D0
GPIO4	SDMMC_SCK
GPIO5	SDMMC_CMD
GPIO6	SDMMC_D3
GPIO7	SDMMC_D2
GPIO8	TP_SDA
GPIO9	TP_SCL
GPIO10	LCD_QSPI_SCL
GPIO11	LCD_QSPI_CS
GPIO12	LCD_QSPI_D0
GPIO13	LCD_QSPI_D1
GPIO14	LCD_QSPI_D3
GPIO15	LCD_QSPI_D2
GPIO16	I2S_DO
GPIO17	I2S_WS
GPIO18	I2S_DI
GPIO19	USB_N
GPIO20	USB_P
GPIO21	I2S_BCK
GPIO38	LCD_TE
GPIO39	LCD_RST
GPIO40	TP_SCL
GPIO41	TP_INT
GPIO42	IMU_INT1
GPIO43	UART0_RX
GPIO44	UART0_TX
GPIO45	-
GPIO46	TP_BLK
GPIO47	PW_OFF
GPIO48	I2S_MCLK

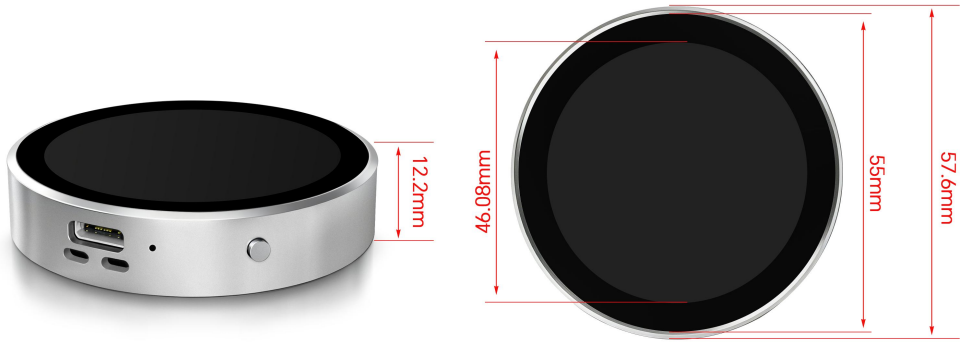
4.4 Voltage & Current

Item	Conditions	Min	Typ	Max	Unit
Power Voltage	DC	4. 0	5.0	5.5	V
Operation	VCC= +5V, Maximum backlight current	-	200	-	mA
Recommended power supply:5V 1A DC					

4.5 Reliability Test

Item	Conditions	Min	Typ	Max	Unit
Working Temperature	60%RH at 5V voltage	-20	25	60	C
Storage Temperature	---	-30	25	70	C
Working Humidity	25°C	10%	60%	90%	RH
ESD	---	Contact: ±4KV Air: ±8KV			KV

5. Product Size



6. Detailed Information

GitHub: https://github.com/VIEWESMART/SmartRing-Plus

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QQ Group: 1014311090
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