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**Product
Datasheet**

ET070KDH6010--DC(WIFI),Date Sheet V1.1

ISO9001:2015 Quality System Certification

Customer			
Keyword	DH series, HMI, 600*1024, 7.0 inch, RS485, with configuration, L UA script, video, casing, 2.5D 3D cover, integrated black surface, f ully laminated IPS screen		
Model	ET070KDH6010-DC(WIFI)		
Signature of Customer		Signature of Customer	
Date		Date	2026.01.30



Version Record

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1. Introduction of Hardware

This section mainly covers some reference images of the product's appearance, hardware configuration diagrams, pin definitions, and tools needed for debugging.

This product uses a brand new shell, and there are 5 major changes compared to the old shell:

1. The surface glass cover plate uses a 2.5D three-dimensional structure
2. The LCD cover adopts an integrated black design, and the LCD screen and the touchpad are fully laminated structure
3. The upper and lower sides are designed with narrow bezels
4. The overall thickness of the shell is reduced
5. It is installed without a screw lock, and a backplate buckle is used to make installation more convenient.

1.1 Shell display diagram

1. The following is a reference diagram of the new enclosure, as shown in Figure 1-1



Figure 1-1 Illustration of the shell

2. The following is a reference of the front view and back view of this size, as shown in Figure 1-2.

Note: It does not involve the modification of key structural processes or major adjustments in layout, only the changes and iterations of product processes or reliability, and the company will not initiate changes externally, which is subject to the physical objects received.





Figure 1-2 Product Reference Diagram

1.2 Introduction of Hardware

The following is a reference diagram of the hardware configuration of the product of this size, as shown in Figure 1-3.

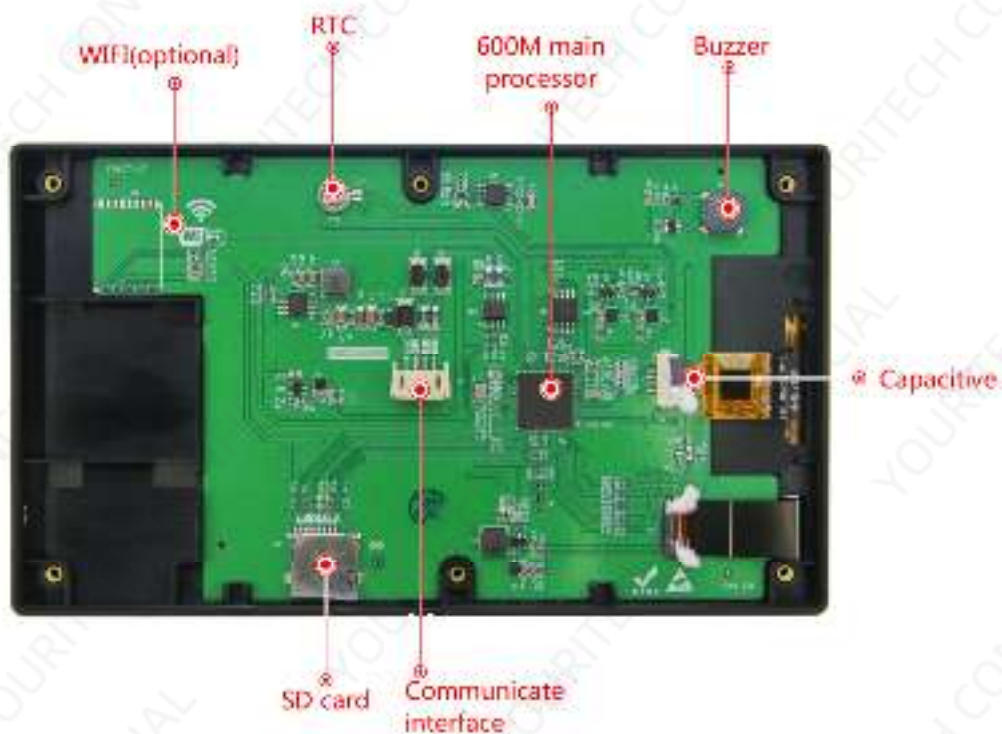


Figure 1-3



1.3 Pin definition

Num ber	Definitio n	Description	Reference diagram
1	GND	Power ground	
2	VCC	Power input 5-28V	
3	A	RS485 A-side	
4	B	RS485 B-side	



1.4 Debugging tool

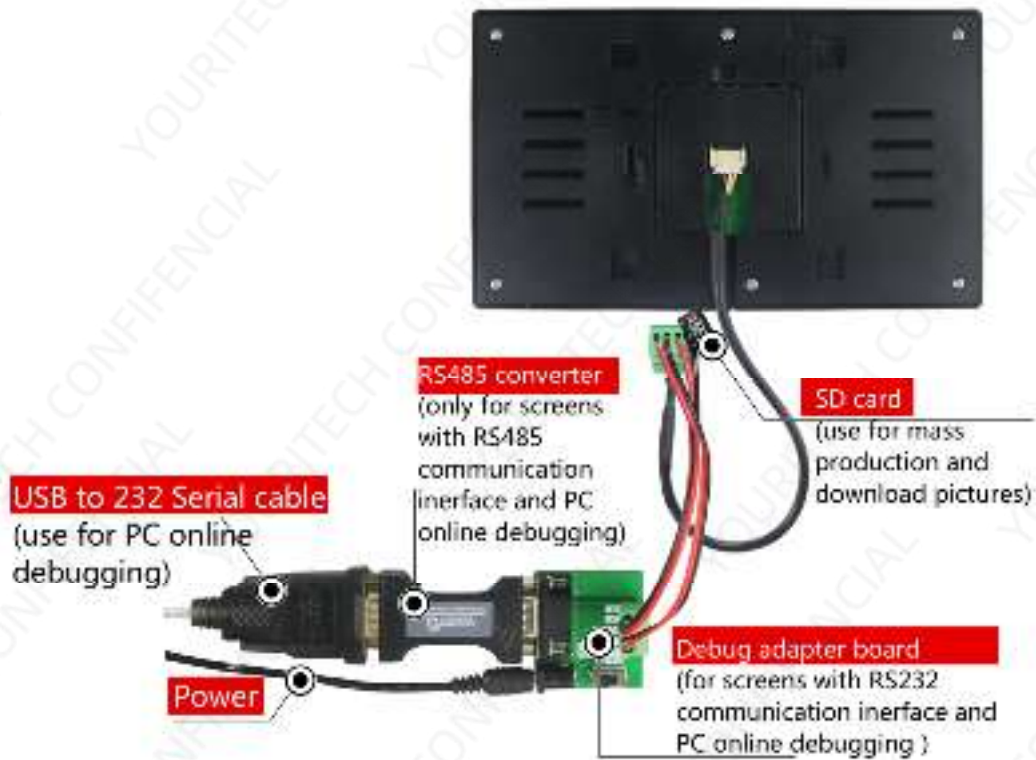


Figure 1-4 Debugging tool

◆ Development of commissioning accessories (optional)	
Name	Accessory Model
Power adapter	Power adapter, 5V 2A DC5.5*2.1mm Tite
USB to 232 serial cable	USB to RS232 serial cable
SD Card (MicroSD)	Capacity up to 32G Format: FAT32
Debug board	DC_485_4P debugboard



2. Installation Diagram

The following is a schematic diagram of the installation of this model, as shown in Figure 2-1.



M系列7寸线控器安装示意图
INSTALLATION DIAGRAM OF M-SERIES 7 INCH WIRE CONTROLLER



第一步：把螺丝放进如图红色标识位置并拧紧螺丝，将挂槽固定在设备或机柜上
STEP 1: PLACE THE SCREWS AT THE POSITION MARKED BY RED CIRCLES AND TIGHTEN THE SCREWS TO FIX THE HANGING SLOT TO THE EQUIPMENT OR RACK.



第二步：将串口屏后面4个扣孔对准底座上的卡扣台上
STEP 2: ALIGN THE 4 HOLES ON THE BACK OF THE SERIAL PORT DISPLAY WITH THE 4 LATCHES ON THE BOTTOM PLATE AND CLIP IT ON.



第三步：压合后往上推，确保4个卡扣完全对准
STEP 3: AFTER PRESSING TOGETHER, PUSH UPWARDS TO ENSURE THE 4 LATCHES ARE FULLY ALIGNED.



第四步：将串口屏向下推使串口屏扣紧在卡扣上
STEP 4: PUSH THE SERIAL PORT DISPLAY DOWN TO MAKE IT CLIP TIGHTLY ON THE LATCHES.

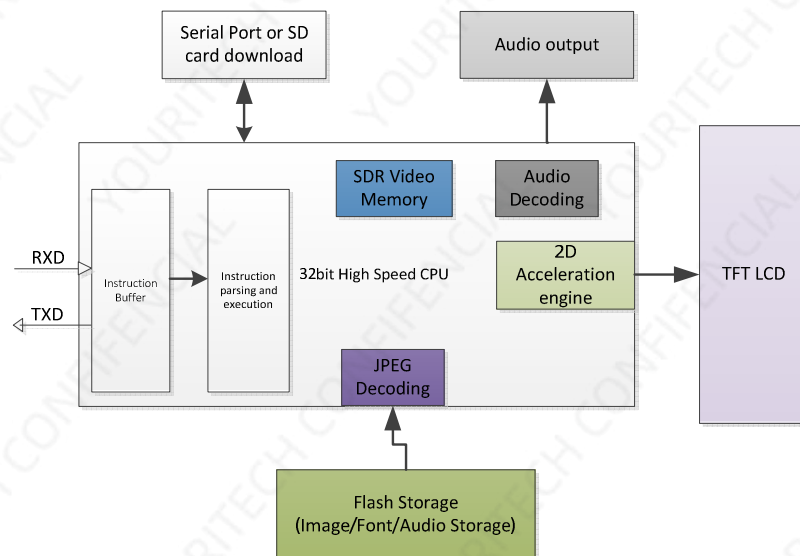
Figure 2-1 Installation diagram



3. Product Structure

The industrial serial port screen launched by YOURITECH Technology is a serial display terminal that integrates TFT display driver, picture storage, GUI operation, audio playback and various configuration controls. The user MCU only needs to send and receive the corresponding serial port commands to easily display text, pictures and curves.

The M series serial port screen processor uses a 32-bit 400M SOC processor, which integrates functions such as SDR memory and JPEG image decoding. The system structure is shown in 3-1



3-1

The main advantages of choosing a high-performance 64-bit dual-core processor structure are:

1. Dedicated 32-bit 600M SOC processor optimized for picture display, with 2D acceleration engine, JPEG picture hardware decoding, so that the display can cooperate with various special effects, and the display effect is smooth and gorgeous.
2. No operating system, 24 * 365h hours of continuous power can work reliably, no garbage redundant files.



Product Specification

◆ Product Specification	
Model Description	ET070KDH6010--DC(WIFI), wired controller (RS485, capacitive touch)
Product Series	DH Series
Core Processor	600M SOC processo
Operating System	No operating system, can run once power on
Protocol Type	Supporting MODBUS RTU、FX2N、FX3U、DELTA(DVP)、XINJIE(XC)、XINJIE(XD)、FATEK(FB)、HAIWELL(N/S)、SAMKOON、EMERSON、DCBUS、XGUS etc. Protocol
Script language	Version 5.3 LUA scripts with user-written logic, protocols and algorithm functions running inside the screen
Size	7.0 inch
Resolution	600*1024
Installation Orientation	Supports 0, 90, 180 and 270 angle rotation installation display
Storage Space	128Mbit
Font	Built-in vector font, edge anti-aliasing, support any size ASCII, GBK, GB2312, UNICODE (global language) font library, can also customize any computer font display
Image Storage	Support JPEG, PNG (semi-transparent/full transparency) compression, support any size picture storage. The total can store about 115 full-screen images (calculated by size 120KB/sheet, BMP format is not recommended). The image compression ratio is different, and this value fluctuates up or down
Color	65K color, 16-bit RGB
Voltage	5-28V
Power Consumption	Darkestbacklight: 0.5W
	Brightest backlight: 2.4W
Communicate Interface	RS485
Communicate Baud-rate	RS485:1200~115200bps, typical baud rate : 19200bps
Communication Connector Specifications	PH2.0-4P
Image Download	SD card, serial port
Firmware local/remote upgrade	Insert SD card/support remote serial port of user motherboard to upgrade screen firmware
Picture remote upgrade	Insert SD card/support remote serial port of user motherboard to upgrade screen firmware
RTC	Supports clock, timer, countdown, and other functions
Screen Active Display	152.4mm*89.3mm



Area (AA)	
Product Size (L*W*H)	174.4 mm*101.0mm*13.4mm
Product Size (L*W*H)	174.4 mm*101.0mm (Recommendation for the size of the window in the client cabinet 175.4 mm*102.0mm)
Supporting Host Computer Software	VisualHMI®
Video playback	MP4 video format, sharing storage space with pictures. If a video file with a resolution of 800*600, a video bitrate of 3000Kbps, an audio bitrate of 166Kbps, and a frame rate of 25Hz occupies 21.9MB/min
WIFI (Optional)	It adopts the WBR1D module, has a built-in 32-bit CPU, supports 802.11a/ b/g/n 1x1, 2.4G&5G frequency bands, and can be configured with a Tuya cloud server, which can be remotely controlled by the Tuya APP.
Three-Conformal Paint Process	None (Optional)

◆ Reliability Parameters	
Operating temperature	0~+50°C
Storage temperature	-10~+60°C
ESD Test	IEC 61000-4-2 Air: ±16KV(No restart)
EFT Test	IEC 61000-4-4 national standard 4 (voltage: ±4KV; frequency: 5KHZ; time: 120S), no restart, no abnormal display, no abnormal touch, etc., the test function is normal
Radiation Test	EN55022 ClassB

◆ Product Core Competitiveness	
Learning Cycle	30 minutes to familiarize yourself with the development environment, 3 days to complete the HMI design
Program debugging	The host computer integrates a "virtual serial port screen", which does not need to be connected to the hardware, and Keil IDE is directly bound to it for debugging
Startup time	It can be displayed when powered on
Configure Controls	In addition to traditional buttons, text, progress bars, QR codes and other controls, a variety of new configuration controls have been added, such as: multi-status indicators, recipes, operation records, flow blocks, alarm bars and other configuration controls
System Keyboard	Built-in virtual number, character keyboard, support Chinese and English input methods, customize keyboard
Data logging	Supports exporting data logging control content to SD card
Layer technology	The system has multiple built-in display layers for faster switching
Multi-language capabilities	Factory preset up to 15 global languages of any country, one-click switch of the required language, without the need for multiple sets of UI
Logical operation processing	The LUA script parser is embedded in the host computer, and users can customize various complex logical relationships and protocols on the screen, meeting 99.9% of



	the product function requirements of customers
Reliability	Products are tested for high and low temperature, ESD, group pulse and radiation by industry standards

◆LCD

Display Type	IPS
Backlight Tube	LED
Brightness (cd/m ²)	300
Backlight Life (h)	>20,000
Contrast Ratio	800:1
Visual Angle (L/R/T/B)	85/85/85/85

◆ Touch panel

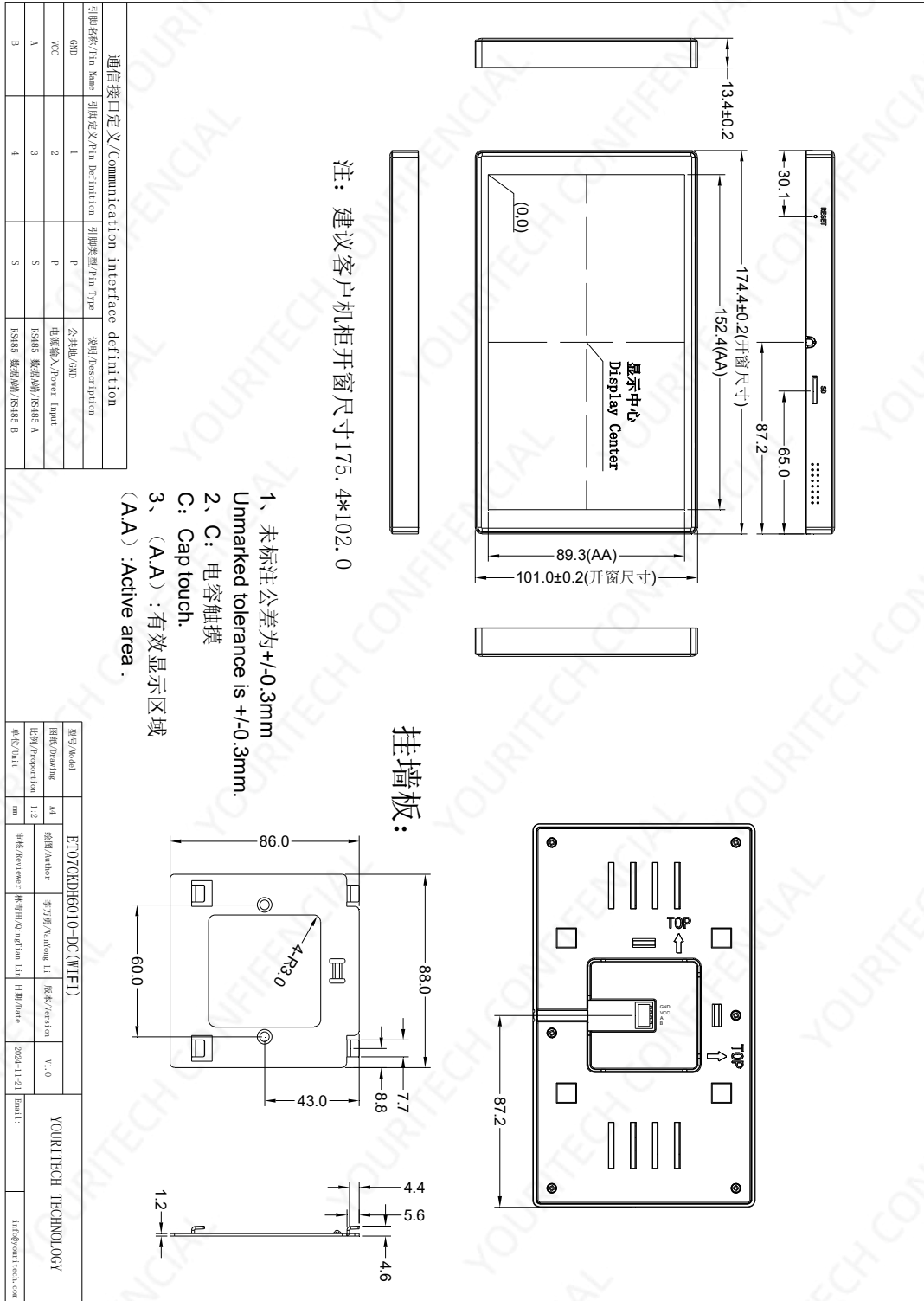
Touch type	Capacitive touch screen
Capacitive screen touch mode	Single-point, swipe touch
Capacitive screen light transmittance	More than 90%
The number of capacitive screen touches	The number of capacitive screen touches is theoretically unlimited, and the touch life is related to the working environment (dust, humidity)
Capacitor cover is customized	The "glass cover + capacitive touch" integrated lamination service can be customized according to the user's drawing size

◆ Customization Service

Customization Fee	One-time order 1000PCS can partial exempt customized fee
Hardware Circuit	Can customize PCB size, circuit thickness, add user circuit, military-grade temperature display, etc.
Software Customization	Customize special instructions or controls according to user needs to reduce user development difficulty
UI design Service	Can provide picture art and product structure design services
Others	Customized on demand to meet all user needs



4. Product Dimensions



5. Reliability Test

All serial port screens of YOURITECH Technology have carried out a series of process reliability tests before mass production: high and low temperature, ESD, pulse burst, radiation, touch life and other tests to ensure product quality, as shown in Figure 5-1.



图 5-1 Reliability Test Equipment

5.1 ESD Test

5.1.1 Executive Standard

Executive Standard	IEC 61000-4-2
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5.1.2 Test Ambient

Test ambient temperature:25°C

Test ambient humidity:50%

Test process: Place the product on the test stand, lay down on the serial port screen buckle and the display area in order to make contact and air discharge as shown in 5-2 Observe whether if the screen have reset or restarted,or abnormal display.





5.1.3 Test Data

Product Model	Discharge type	Humidi type	Test result
ET070KDH6010-DC(WIFI)	air	±16KV	No restart, no abnormal display, normal function
<i>Note: The current test test is the product exposed test, the actual product assembly machine, keep the screen and the machine well grounded, or the surface of the touch board is protected by PVC or cover, the ESD performance index of the whole machine will be higher</i>			

5.2 High and Low Temperature Aging Test

5.2.1 Test environment

Test ambient temperature: -20~+50°C

Test ambient humidity: 60%±3%RH

Test process: the product is placed obliquely in the high and low temperature test box as shown in Figure 7-3, through the 72H high temperature, low temperature, high and low temperature alternating transformation aging test, observe whether the screen during the test and after the experimental test whether the screen has reset and restart, display abnormality, abnormal function and other phenomena.





图 5-2 高低温老化测试图

5.2.2 Test date

Product Model	Temperature	Humidity	Test results
ET070KDH6010-DC(WIFI)	High temperature (70°C)	65%	No restart, no abnormal display, normal function
	Low temperature(-20°C)	65%	No restart, no abnormal display, normal function
	Alternating high and low temperature (-20~70°C)	65%	No restart, no abnormal display, normal function

5.3 Group Pulse Test

5.3.1 Executive Standard

Executive Standard	IEC 61000-4-4
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5.3.2 Test environment

Test ambient temperature: 25°C

Test ambient humidity: 50%

Test process: the product is placed flat on the test bench, and the power supply after coupling the pulse group generator is used to power the screen, as shown in Figure 6-4, and observe whether the screen is reset and restarted, display abnormal, touch abnormality and other phenomena during the experiment





5-3 Test Date

Product Model	Test Standard			Test Result
ET070KDH6010-DC(WIFI)	International Standard 4			No restart, normal communication, normal function
	Voltage (KV)	Frequency (KHZ)	Time (S)	
	±4.0	100/5	120	

5.4 Radiation Test

5.4.1 Executive Standard

Executive Standard	EN55022 ClassB
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5.4.2 Test environment

The radiation test laboratory environment is shown in 6-5。

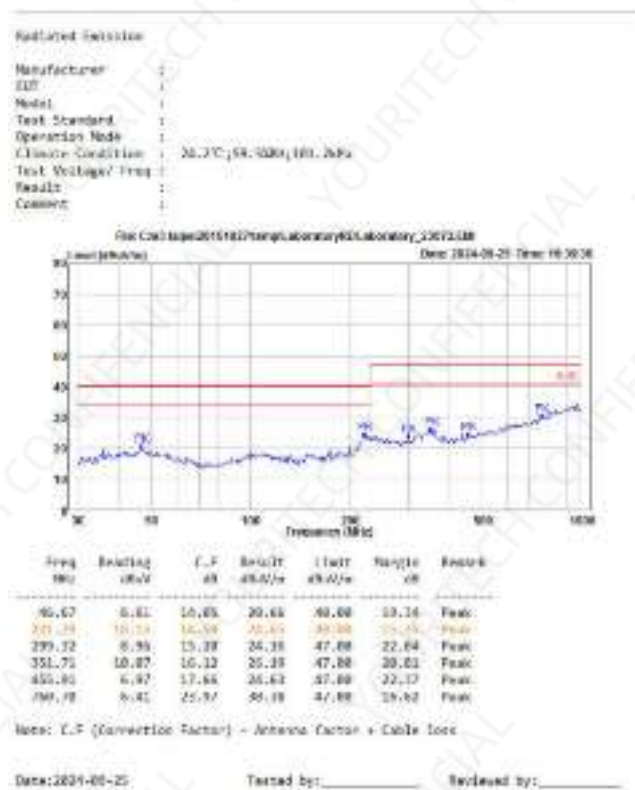




Figure 6-5 Radiation test chart

5.4.3 Test Data

1. Radiation test horizontal test data, shown in Figure 6-6.



1. Radiation test vertical test data, shown in Figure 6-7.





Figure 6-7: Radiation test vertical



6. Develop software

Users can run MODBUS RTU, XGUS, PLC protocols and other protocols through the host computer configuration.

Open VisualHMI upper computer software, click [Project Settings] → [Communication Protocol] in the menu bar to enter the protocol configuration interface, users can choose to enable the corresponding protocols according to their needs, as shown in Figure 6-1.



Figure6-1 Protocol Configuration

Any YOURITECH user can complete a complex human-computer interaction design in 30 minutes with only 3 steps.

6.1 What is visual serial interface screen

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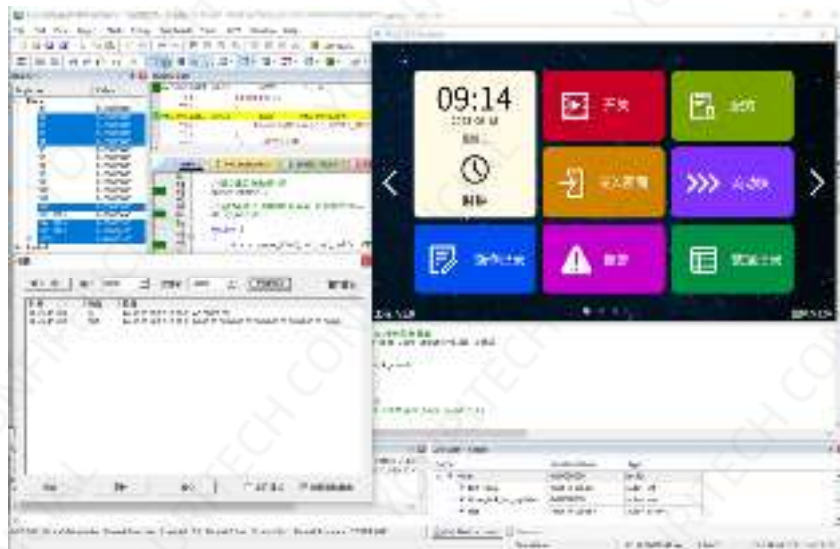
Online debugging of the serial port of the user's single-chip microcomputer and the "virtual HMI"

6.2 Keil HMI

In order to further improve development efficiency, users can also bind Debug to the "virtual HMI" through the Keil development environment. When the program is single-step debugging, all running results can be presented on the "virtual HMI", which greatly saves the engineer's development time, as shown in Figure 13-3. Once the engineering interface is changed, the user no longer needs to re-download the image to the HMI, and all pre-project evaluation can be done on



the PC.



Note: The debugging of virtual HMI needs keil software support, in the debug process, enter dirvtreg in the command serial port, you need to list SxIN (according to the microcomputer, x may represent 0, 1, 2), if there is a list of means that keil has virtualized the serial port of the single-chip microcomputer to the register, so that it can be used.

Protocol Configuration

Users can configure and run protocols such as DCBUS, MODBUSRTU, FX2N, FX3U, etc., through the host computer. Open the VisualHMI host computer software, click the menu bar [Project Settings] → [Communication Protocol] to enter the protocol configuration interface, where users can enable the relevant protocols according to their needs, as shown in Figure 6- 1.



Figure 6- 1



7. LUA Script Configuration

Guangzhou Dachai Optoelectronics Technology Co.(www.gz-dc.com) launched serial screen series and HMI series which support LUA language scripting. The serial screen provides rich LUA script API and callback interface, users can directly set and get the running status of all configuration controls by calling the API interface, combined with the written logic processing, the screen can complete the scheduled actions without the participation of external MCU, reducing the data communication between MCU and screen.

LUA is a lightweight scripting language with simpler syntax and logic than C. LUA comes with a library of well-functioning mathematical functions, string processing, JSON and other libraries, which support common mathematical operations, such as opening square, sine and cosine, taking absolute values, etc.; due to the high main frequency of the screen itself, all complex algorithms are handled by the screen, which greatly reduces the user's MCU execution overhead.

The LUA script for writing projects in VisualHMI software can be opened by clicking the menu bar [Project] → [LUA Programming], as shown in Figure 7-1, to enter the LUA script writing interface as shown in Figure 7-2.





8. Packaging With Physical Dimensions

Unit weight					
Net weight (KG)	0.29				
Packing standards and total weight					
Box model	Box size (length * width * height in mm)	Number of layers	Quantity (PCS)/layer	Total Quantity (Pieces)	Totalweight (KG)
Box 1	616*523*275	1	50	50	17

Note: The total weight does not include the weight of the accessories, the above weight information is an estimated weight for reference only, and the actual weight is subject to the actual weight.



9. Disclaimer

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