



ISO9001:2015 质量体系认证

ASTG 028W023-COF屏 规格书

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文件信息

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变更记录

| 日期 | 作者 | 版本 | 变更说明 |
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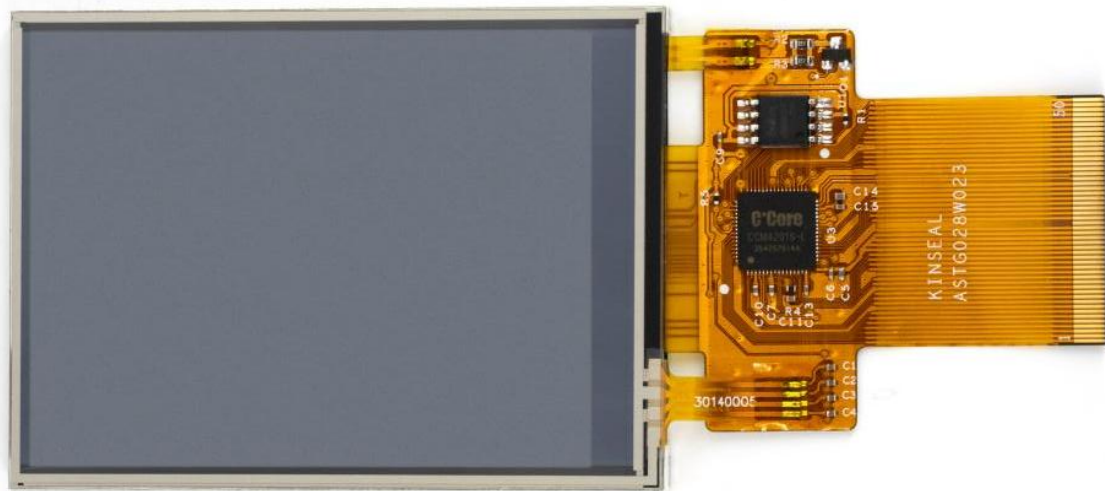
变更审阅

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1. Product Description

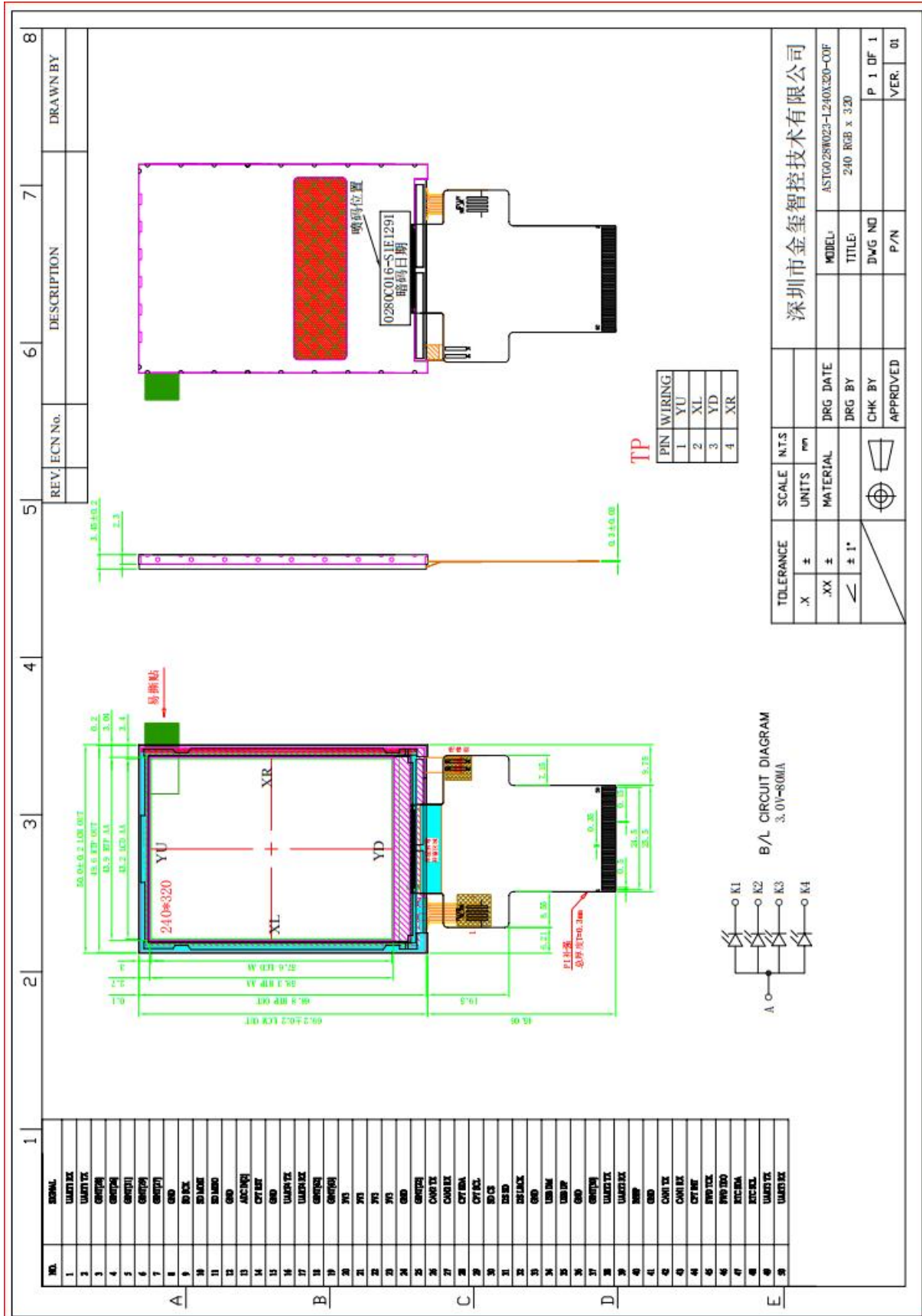
ASTG028W023-L240X320X-COF screen series have two kinds of resistive screen and no touch, and also support the customer's own external capacitive touch screen. COF screen is powered by 3.3V, through our HMILite configuration software for UI design, through the USB download to achieve the customer's desired UI interface. COF screen default support for 1-way serial communication (COF screen supports one serial port communication (UART2) and one CAN (CAN1) communication by default to interact with external controllers; it supports RTC and buzzer by default. This COF screen reserves abundant IO ports, which can be controlled by macro commands for input and output.

1.1 Product Model



| model number | Specification |
|---------------------------|--|
| ASTG028W023-L240X320R-COF | ASTG Series, 2.8-inch 240X320 resolution display, DC3.3V, two TTL serial ports, one CAN interface, 10Mbyte SPI NOR Flash, resistive touch, buzzer, COF structure |
| ASTG028W023-L240X320N-COF | ASTG Series, 2.8-inch 240X320 resolution display, DC3.3V, two TTL serial ports, one CAN interface, 10Mbyte SPI NOR Flash, no touch, buzzer, COF structure |

1.2 Product Size



1.3 Product Parameters

| Product Specification | | |
|--------------------------|---------------------------------|---|
| hardware performance | model number | ASTG028W023-L240X320R-COF ASTG028W023-L240X320N-COF |
| | monitor | 2.8" TFT LCD |
| | Resolution (Px) | 240X320 |
| | coloration | 65536 colors |
| | luminance | 250 cd/m ² |
| | 背光 | LED (Does not support backlight adjustment) |
| | LED Lifetime | 20,000 hours |
| | Screen Active Display Area (AA) | Length*Width = 43.2mm*57.6mm |
| | Product size (L*W*H) | 50mm*69.2mm*3.45mm (tolerance +/-0.2mm with TP) |
| | touchscreens | ASTG028W023-L240X320R-COF: resistive touchscreen ASTG028W023-L240X320N-COF: no touch |
| | CPU | 200MHz ARM Cortex-M4F Built-in 2MB PSRAM memory |
| | memory (unit) | On-chip 2Mbyte SPI NOR Flash; Off-chip 8Mbyte SPI NOR Flash; |
| | RTC | Support, Add External Circuitry |
| | buzzers | Support, Add External Circuitry |
| | Power down data saving | 3S autosave |
| | USB port | USB Device |
| | Program download method | USB Download |
| | communication port | 1-way TTL level serial interface; 1-way CAN communication interface; |
| | Plug specification | FPC0.5mm-50P |
| Electrical Specification | rating | Maximum 1W |
| | rated voltage | 3.3V |

| | | |
|-------------------------------------|---------------------------|--|
| ns | Permissible loss of power | <5ms |
| | ESD testing | Contact discharge: +/-2KV; Air discharge: +/-4KV |
| | EFT Testing | IEC 61000-4-4 national standard 4 (voltage: ± 4KV; frequency: 5KHZ; time: 120S), no restart, no display abnormality, no touch abnormality and other phenomena, test function is normal |
| Environmental specifications | operating temperature | -20°C~70°C |
| | Storage temperature | -30°C~80°C |
| | Environmental humidity | 10~90%RH (non-condensing) |
| | seismic defenses | 10-25 Hz (X, Y, Z directions, 2g/30 min) |
| | Cooling method | natural air cooling |

2. Hardware Introduction

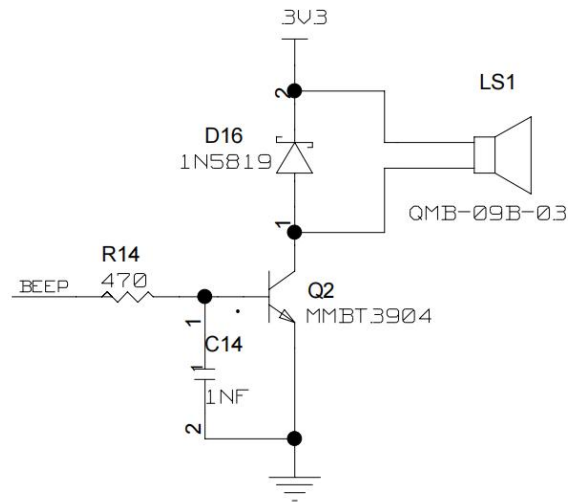
2.1 FPC Pin Definition

| Pin | define | clarification |
|-----|-----------|--------------------------------------|
| 1 | UART1 RX | Serial port 1, default is print port |
| 2 | UART1 TX | |
| 3 | GINT[28] | GPIO, Macro Command Operable |
| 4 | GINT[26] | GPIO, Macro Command Operable |
| 5 | GINT[31] | GPIO, Macro Command Operable |
| 6 | GINT[29] | GPIO, Macro Command Operable |
| 7 | GINT[27] | GPIO, Macro Command Operable |
| 8 | GND | systematically |
| 9 | SD SCK | SD Card Clock |
| 10 | SD MOSI | SD CMD signal |
| 11 | SD MISO | SD DAT0 signal |
| 12 | GND | systematically |
| 13 | ADC IN[2] | ADC input |
| 14 | CPT RST | Capacitive screen reset signal |
| 15 | GND | systematically |
| 16 | UART4 TX | Serial 4 communication port Reserved |
| 17 | UART4 RX | |
| 18 | GINT[62] | GPIO, Macro Command Operable |

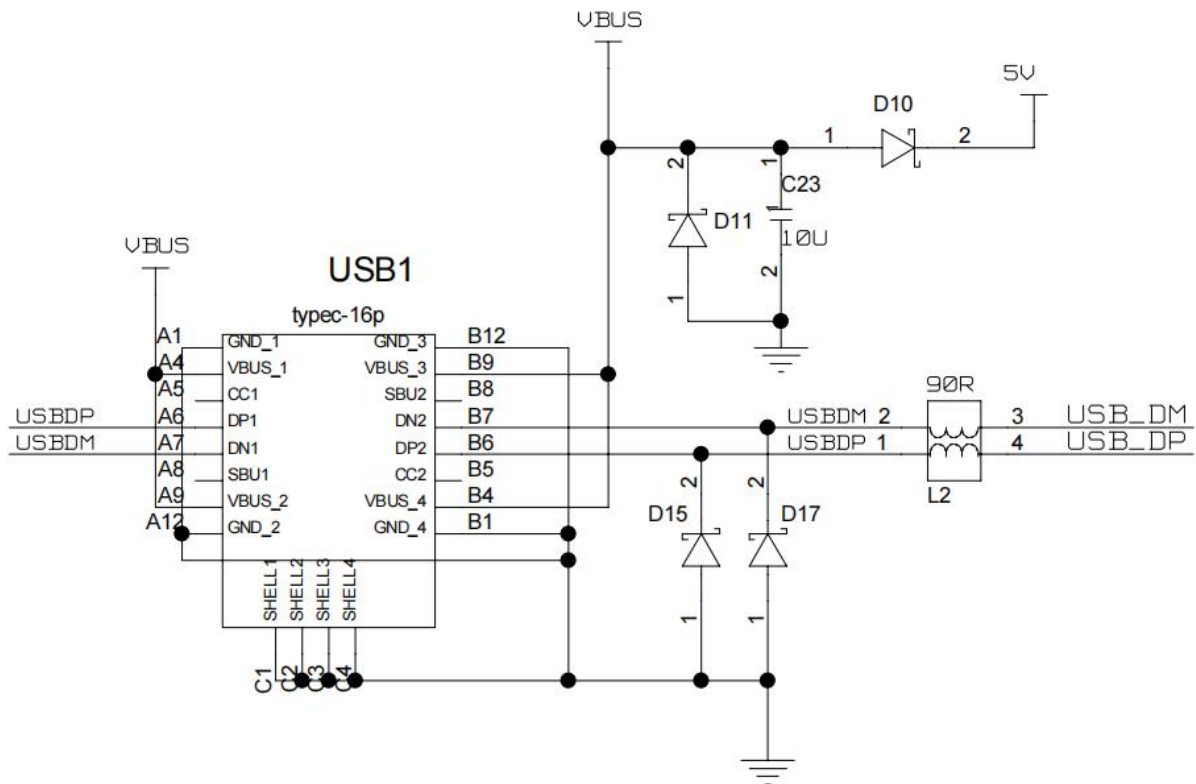
| | | |
|-------|----------|--|
| 19 | GINT[63] | GPIO, Macro Command Operable |
| 20-23 | 3V3 | 3V3 power supply |
| 24 | GND | systematically |
| 25 | N.C. | |
| 26 | CAN2 TX | CAN2 Reserved |
| 27 | CAN2 RX | |
| 28 | CPT SDA | Capacitive Screen I2C SDA Signal |
| 29 | CPT SCL | Capacitive Screen I2C SCL Signal |
| 30 | SD CS | |
| 31 | I2S SD | I2S interface, can be used as GINT[0] |
| 32 | I2S LRCK | I2S interface, can be used as GINT[1] |
| 33 | GND | systematically |
| 34 | USB DM | USB, Download Port |
| 35 | USB DP | |
| 36 | GND | systematically |
| 37 | GINT[30] | GPIO |
| 38 | UART2 TX | Serial port 2, the default communication serial port |
| 39 | UART2 RX | |
| 40 | BEEP | Buzzer control, 2.7KHz square wave |
| 41 | GND | systematically |
| 42 | CAN1 TX | Default CAN1 communication interface |
| 43 | CAN1 RX | |
| 44 | CPT INT | capacitive display interruption |
| 45 | SWD TCK | JLINK |
| 46 | SWD TDO | |
| 47 | RTC SDA | RTC I2C DATA signal |
| 48 | RTC SCL | RTC I2C Clock Signal |
| 49 | UART3 TX | Serial Port 3, Communication Port, Reserved |
| 50 | UART3 RX | |

2.2 Recommended Circuit Design

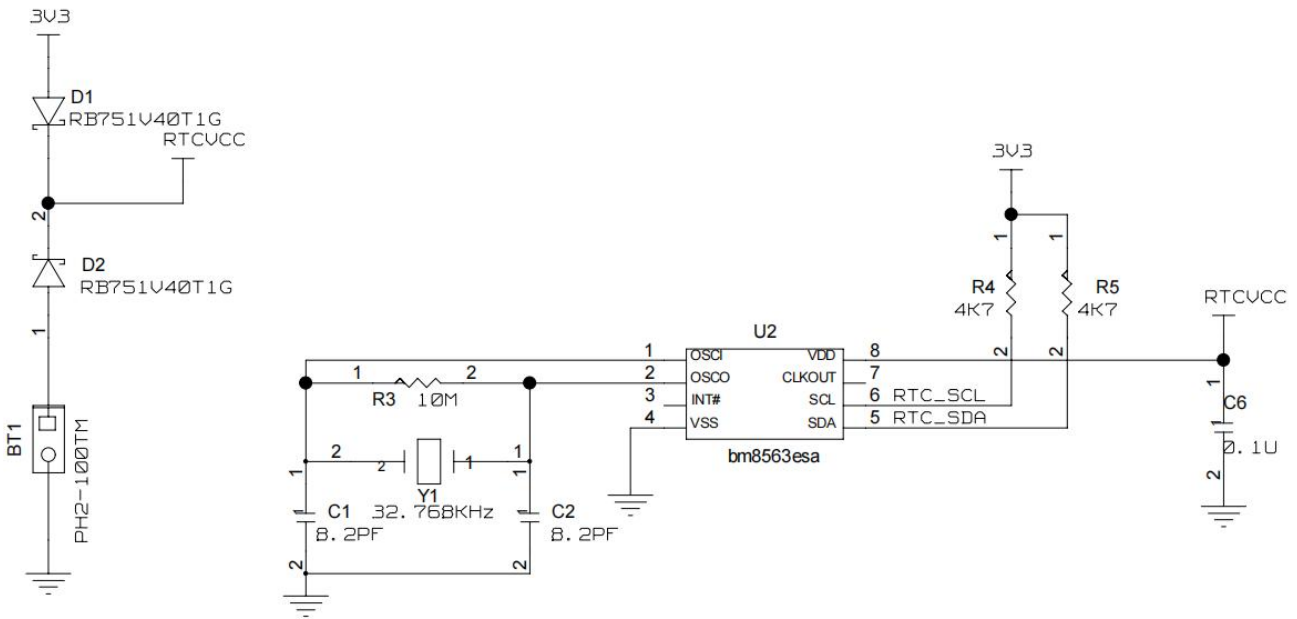
2.2.1 Buzzer Circuit



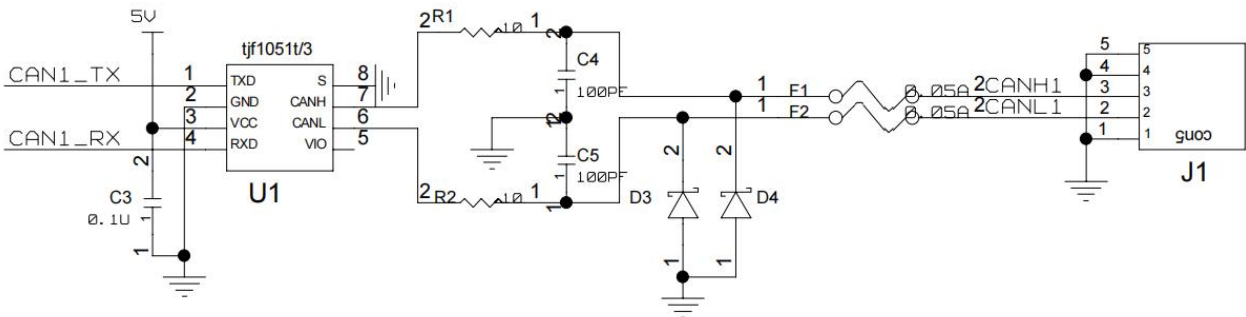
2.2.2 USB circuit



2.2.3 RTC circuit

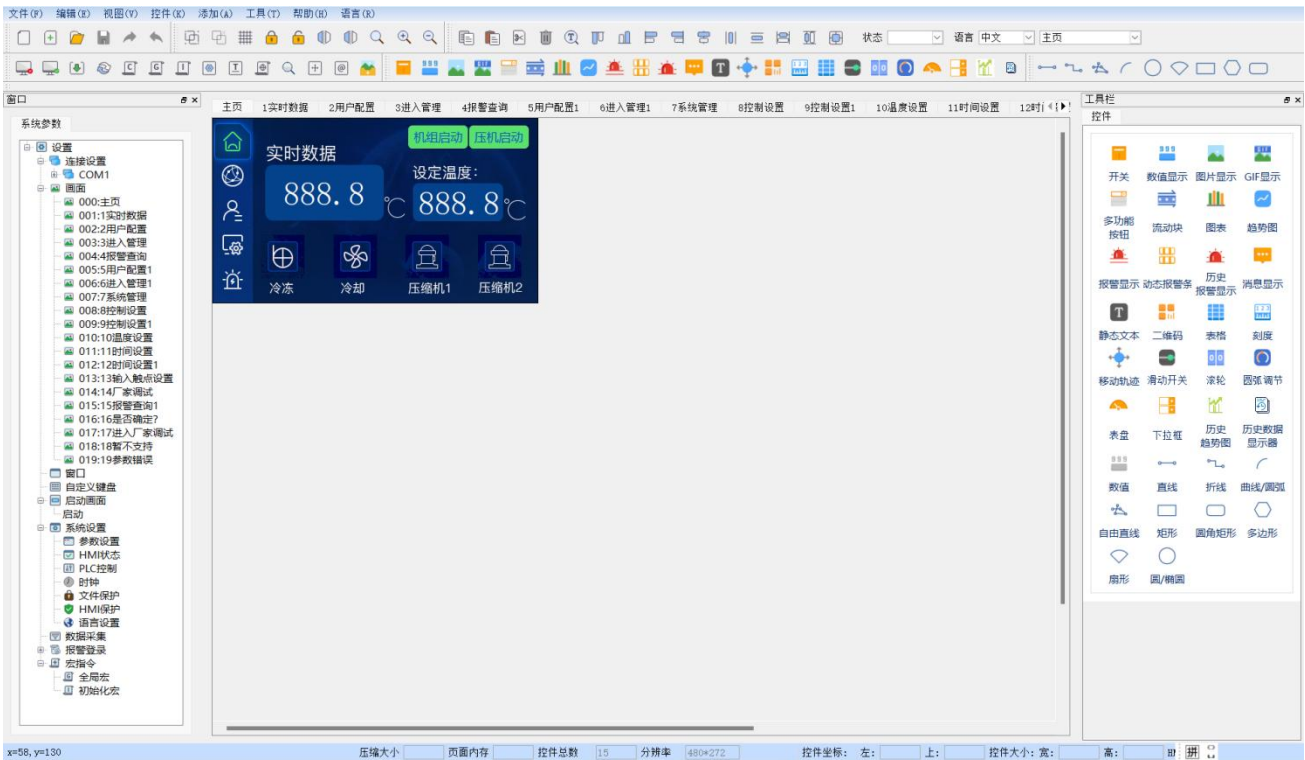


2.2.4 CAN communication interface circuit



3 上位组态软件说明及下载程序说明

3.1 development software



The configuration software **HMI Lite** is a set of upper software that can be edited by the customer at will. The customer's applications are all developed on the basis of the upper software, which consists of a rich set of controls that can be combined at will in order to realize the functions desired by the customer:

Controls are included:

| | |
|---|---|
| <p>switch button</p> | <p>Includes "bit buttons", "word buttons", "indicator lights", "screen buttons", "function buttons", and "multistate buttons". "Function buttons" and "Multi-state buttons" can be used to touch the connected device and monitor the status.</p> |
| <p>Numerical input and display</p> | <p>Includes multiple binary inputs and displays, ASCII inputs and displays for displaying monitored address values (Up to 16 ascii displays + QR code controls on a single screen)</p> |
| <p>mobile block</p> | <p>Animated graphics that simulate the state of liquid flow in a pipe</p> |
| <p>Static text/table/scale</p> | <p>A variety of basic shapes, including lines, circles, ellipses, rectangles, etc.</p> |
| <p>Image display and gif animation</p> | <p>Picture display box showing one or more pictures</p> |

| | |
|----------------|---|
| meter | 柱状图,仪表,圆环, 显示数据的某种状态值 |
| 趋势图 | 实时动态的显示监视地址的数据趋势图(趋势图+历史趋势图最多支持 4 个) |
| 历史数据显示器 | 以表格形式显示数据采集器获取的数据 |
| 历史趋势图 | 实时动态的显示数据采集器获取的数据趋势图(趋势图+历史趋势图最多支持 4 个) |
| 多功能按钮 | 一个开关按钮, 通过该按钮可以很方便快捷的达到各种功能要求(最多添加 2 个功能) |
| 移动轨迹 | 以拖滚动块的方式来控制地址数据 |
| 二维码 | 动态生成二维码, 通过扫描进入网址, 支付等功能 (单个画面的ascii显示器+二维码控件数最多 6 个) |
| 报警显示 | 显示当前设备所发生的报警信息 (分为数位报警和类比报警), 在使用该控件之前必须先配置好报警设定(最多可做(数位报警最多可建立 128 条)) |
| 动态报警 | 用于显示当前的报警, 它与报警控件不同的是动态报警条是以文字滚动的形式显示出当前的报警内容 |
| 历史报警显示 | 显示所有产生的报警信息, 3S检测保存, 最多保存 3 条 |
| 下拉框 | 下拉列表形式选择对应的项目/状态 |
| 滑动开关 | 建立一个滑块区域, 通过按压滑块左右/上下滑动的方式来改变指定字地址的值。 |
| 滚轮 | 建立一个数据区域, 通过上下滚动来修改当前值 |
| 圆弧调节 | 用圆弧的样式来显示当前值, 通过拖动滑块来修改调整当前值 |
| 表盘 | 用表盘来显示时间、进度、速度等数据 |

上位机组态软件的扩展功能:

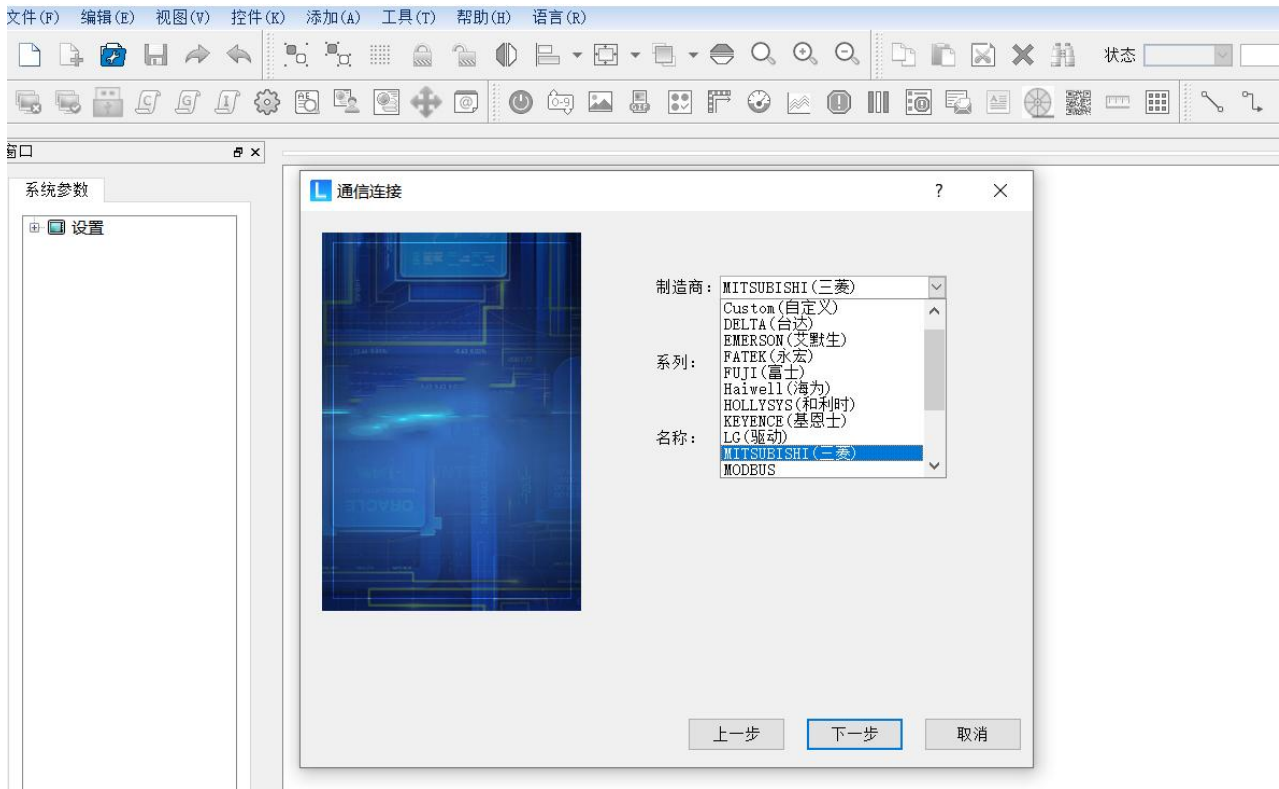
| | |
|---------------|---|
| 宏指令 | C 语言编程, 实现各种比较复杂的逻辑或功能 (宏指令程序 (MarcoRun.dat)最大 136KB, 自定义协议条数最多 100 条, 宏指令只读或者读写变量的个数最多 100 个) |
| PLC 控制 | 通过 PLC 控制 HMI |
| HMI 保护 | 设置了在一定的期限内 HMI 可以正常的使用 HMI, 如果时间超过了用户规定好的时间, 则 HMI 会跳转到用户先前设置好的指定画面中去, 在指定画面中用户只放置功能按钮下面的“面板保护解锁按钮” (只支持 3 个等级) |
| 文件保护 | 打开工程时是否需要输入密码验证打开 |
| 用户密码等级 | 设置用户权限和密码, 进入相应的权限需要输入相应的密码 |

| | |
|--------------------|--|
| 数据采集 | 可以对温度，压力，湿度等进行数据采集(数据采集最多支持 64KB) |
| 语言 | 支持多国语言 (最多支持 4 国语言，报警显示、消息显示器和下拉框仅支持中英文显示) |
| 开机画面 | 用户可以自定义开机 Logo 画面 |
| 离线模拟 | 将画面编译下载到 HMI 中设备之前，可以利用 HMILite 自带的离线模拟功能来校验一下组态画面的正确性和效果展示 |
| 在线模拟 | 在线模拟可以使你在没用 HMI 的情况下，通过个人的计算机（需先安装 HMILite 组态软件）和 plc 等设备通信 |
| 支持多种控制器通讯协议 | 适配各种 PLC，变频器，伺服控制器，单片机控制系统等（三菱、松下、欧姆龙、台达、信捷、永宏、西门子、基恩士、LG、modbus、自定义等通信协议）用户操作时只需要直接在软件上选择调用即可 |
| 自定义添加图库 | 支持自定义添加图库，用户可根据需要截取自己喜欢的图片加载到自定义图库用以调用 |
| 图库 | 图库丰富，支持 Png、Jpg、Gif、Bmp 等多种格式图片,矢量图库，任意缩放无锯齿 |
| 自定义键盘 | 支持自定义键盘，根据自己需要做键盘样式 |

3.2 协议配置

用户可通过上位机配置运行MODBUS RTU，三菱，西门子，台达，信捷等协议。

打开HMILite组态软件，点击[新建工程]，可在[新建工程]里选择所需的通讯协议，也可在工程内修改选择自己所需的通讯协议，打开com1端口设置下方的协议进行更改，如下图。



4.可靠性测试

金玺智控所有产品都进行了一系列流程化可靠性测试：ESD测试，高低温老化测试，群脉冲等测试。确保产品质量。

4.1 ESD测试

执行标准：IEC 61000-4-2

测试过程：将产品平躺放置测试台上，针对触屏铁扣周边和显示区域依次进行接触和空气放电，如下图所示。观察屏幕是否出现复位重启，显示异常等现象



测试数据

| 产品型号 | 放电类型 | 放电值 | 试验结果 |
|---------------------------|------|---------|---------------------|
| ASTG028W023-L240X320R-COF | 接触 | +/-8KV; | 无重启，死机，花屏等异常现象，功能正常 |
| | 空气 | +/-8KV; | 无重启，死机，花屏等异常现象。功能正常 |

4.2 High and low temperature aging test



Test environment: high and low temperature aging test box in the

Test Temperature: -20°~60

Test process: Place the product in the high and low temperature aging test box. Through the 50 ° high temperature, -10 ° low temperature, high and low temperature alternately changing aging test, observe the test process and test after the test whether there is a reset restart, display anomalies, functional anomalies and other phenomena.

Test data

| Product Model | temp | humidity level | Test results |
|----------------------------------|-------------------------|----------------|--|
| ASTG028W023-L240X320R-COF | High temperature 60° | 60% | No reboot, crash, splash screen and other abnormal phenomena. Normal |

| | | | |
|--|--|-----|---|
| | | | function |
| | Low temperature - 20° | 60% | No reboot, crash, splash screen and other abnormal phenomena. Normal function |
| | Alternating high and low temperatures (-20°~60°) | 60% | No reboot, crash, splash screen and other abnormal phenomena. Normal function |

4.3 Group Pulse Test

Implementation standard: IEC 61000-4-4

Test process: Place the product flat on the test bench and power the screen through the power supply after coupling the pulse group by the pulse group generator. As shown in the figure below. Observe the screen to see whether there are abnormal phenomena such as reset and restart, display abnormality and so



on.

测试数据

| 产品型号 | 测试标准 | 测试端口 | 试验结果 |
|---------------------------|-------------|---------|--------------------------------|
| ASTG028W023-L240X320R-COF | EFT +/-4KV; | 电源与通讯端口 | 4KV屏无闪烁, 无重启, 死机, 花屏等异常现象。功能正常 |

5.联系我们

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