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Shanghai Rising Digital Co.,Ltd.

SECD-5I0A-03&SECD-5I0A-03(S)

&SECD-5I0B-03(S)

USER MANUAL

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One: Function

1、Powerful function, good sharp

- control、display、GPS/GPRS/WIF communication
- input and output signals, for sampling and controlling
- good sharp: PAD sharp

1) Voltage input :

- channel : 6
- signal : 0~5V.DC
- precision : 0.5%
- resolution : 0.025%

2) Resistance input :

- channel : 2
- precision : 0.5%
- resolution : 0.025%

3) Discrete input (low level) :

- channel : 5
- signal peak : 0~40V.DC
- frequency : 0Hz~1KHz

4) Periodic input :

- channel : 1
- signal peak : 1.2~36V.DC
- range : 10Hz~70KHz

- precision : 0.1%

5) PWM output :

- channel : 6
- frequency : 50~2.55kHz
- current : 0~1.5A
- precision : 1%
- resolution : 0.025%
- features : overpressure、short circuit protection

6) Motor driver output :

- channel : 4 (one stepper motor)
- contact capacity : 40V.DC 1.2A
- frequency : 0Hz~130Hz
- features : overpressure、short circuit protection

7) Digital output :

- channel : 6
- contact capacity : 36V.DC 1.8A
- frequency : 0Hz~1KHz

8) Communication interface :

- CAN : 1circuit, Rate of optional, ISO11898 CAN 2.0B、J1939
- Communications link : 1circuit, 4G/GSM
 - ✧ North American version—frequency band LTE-FDD B2/4/5/12/17, WCDMA B2/4/5, GSM 850/1900
 - ✧ The European version—frequency band LTE-FDD B1/3/5/7/8/20, WCDMA B1/5/8, GSM

850/900/1800/1900

- ✧ The Chinese version—frequency band LTE-FDD B1/3/8, LTE-TDD B38/39/40/41, WCDMA B1, TD-SCDMA B34/39, GSM 900/1800

- GPS link : 1 circuit

9) Display parameters :

- resolution : 640×480 (3RGB)

10) Other indicators

- kernel : ARM Contex-M4 (32bit)
- proposed kernel : 168MHz
- duty cycle : ≤5 ms
- power supply : 9~36V.DC (Under the recommended voltage 24 v DC 36 v can't work for a long time)
- output voltage : 5V.DC, 0.75A
- Current consumption : 0.2A.DC (24V.DC)
- Working temperature : -20~+65℃
- Storage temperature : -25~+80℃
- overvoltage protection : 37.2V
- high temperature protection : 80℃
- vibration level: 6.8g, 8.3-400HZ
- protection grade : IP65, all-round protection
- relative humidity : 10%~90%
- overall dimensions : 120mm×88mm×51.5mm

2、LM development environment

LM Studio development environment which is based on IEC61149

LM Studio GUI module provide the graphic user interface(GUI)

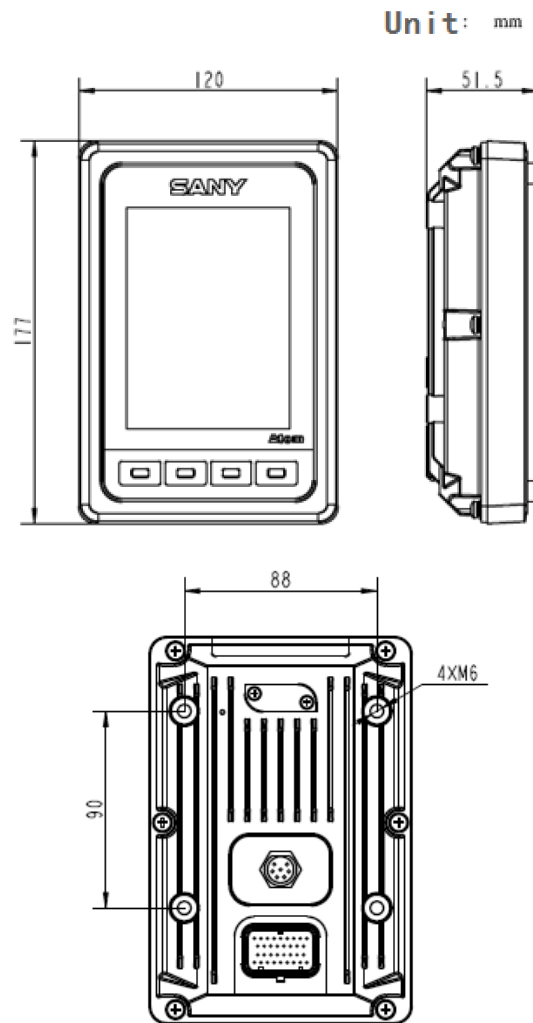
Lots of function blocks which can be used to develop graphic and program quickly

Two: Function definition

1、 interface definition



2、 size



4×M6 screws

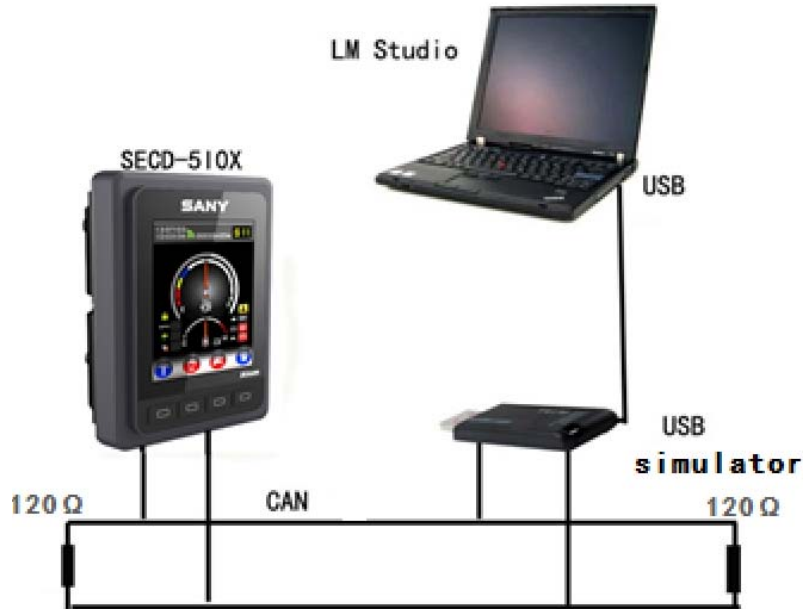
3、 34 pin interface definition

NO	NAME	FUNCTION	REMARK
1	CAN_L	CAN Low	Communicate with controller; Program download and debug
2	CAN_H	CAN High	
3	TI1	Periodic input	
4	AI_V5	Analog input	Active High
5	AI_V6	Analog input	Active High
6	DI_L5	Digital input	Active low
7	RS	Reset	Ground beyond 3s
8	GND	Ground	
9	+5VOUT	+5V Output	

10	PWM_1/DO_1	Pulse-width Modulation/Digital Output	
11	A+	Moto A+	
12	DI_L1	Digital Input	Active low
13	DI_L2	Digital Input	Active low
14	DI_L3	Digital Input	Active low
15	DI_L4	Digital Input	Active low
16	A-	Moto A-	
17	SMI	The Ignition Signal	
18	PWM_2/DO_2	Pulse-width Modulation/Digital Output	
19	B+	Moto B+	
20	B-	Moto B-	
21	AI_V1	Analog input	Voltage type
22	PWM_6/DO_6	Pulse-width Modulation/Digital Output	
23	AI_R1	Analog Input	Resistance type
24	GND	Ground	
25	+24VIN	Power	Range: 12~36VDC
26	PWM_3/DO_3	Pulse-width Modulation/Digital Output	
27	PWM_4/DO_3	Pulse-width Modulation/Digital Output	
28	PWM_5/DO_4	Pulse-width Modulation/Digital Output	
29	AI_V2	Analog Input	Voltage type
30	AI_V3	Analog Input	Voltage type
31	AI_R2	Analog Input	Resistance type
32	AI_V4	Analog Input	Voltage type
33	GND	Ground	
34	+24VIN	Power	Range: 12~36VDC

Three: development and debugging

1、 hardware development platform



The LM USB emulator plug in PC by USB interface. And the USB emulator is connect with the display screen by CAN-bus. LM Studio (the software development environment) can be setup in PC. And the hardware development platform is completed.

2、 software development environment

LM Studio is the platform for software project management, code editing, code compiling, code debugger, code downloading. We can use LM language to develop program.

User can develop HMI by the way of graphic user interface(GUI) . We only need to create some widget in the development environment. Then attach the value to the widget parameter. And write some LM script on the background program. Graphical show by LM studio GUI module is the same to one which is running in the device.

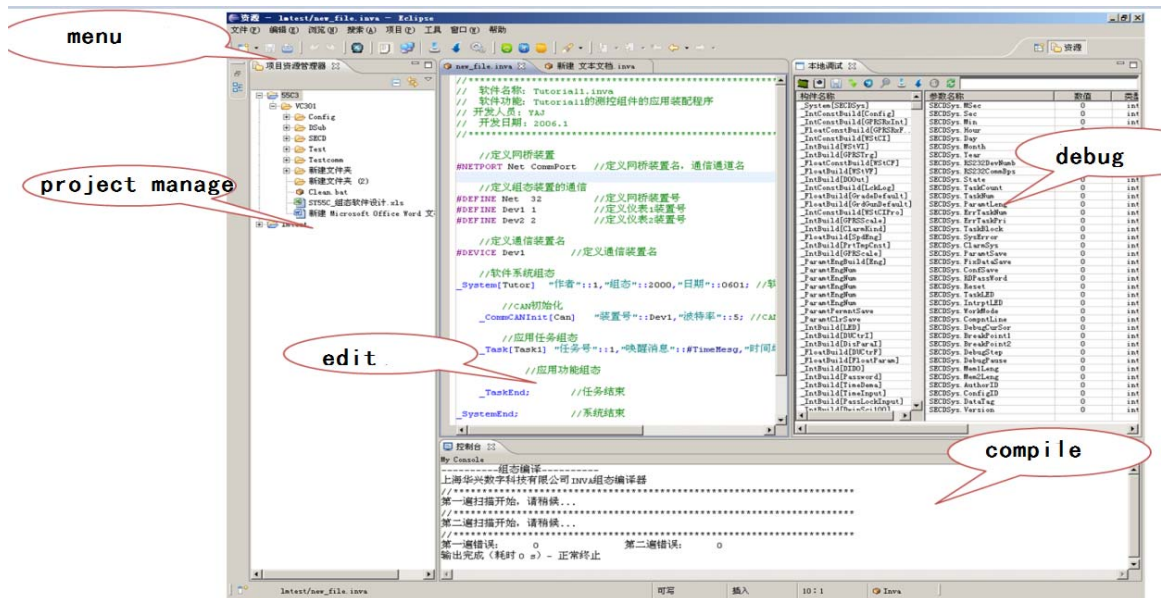


Figure 1 LM Studio setup

LM Studio (the software development environment) can be setup in PC. The user can create project, create page, add the widget, generate the script, download program, program debugger.

3、example

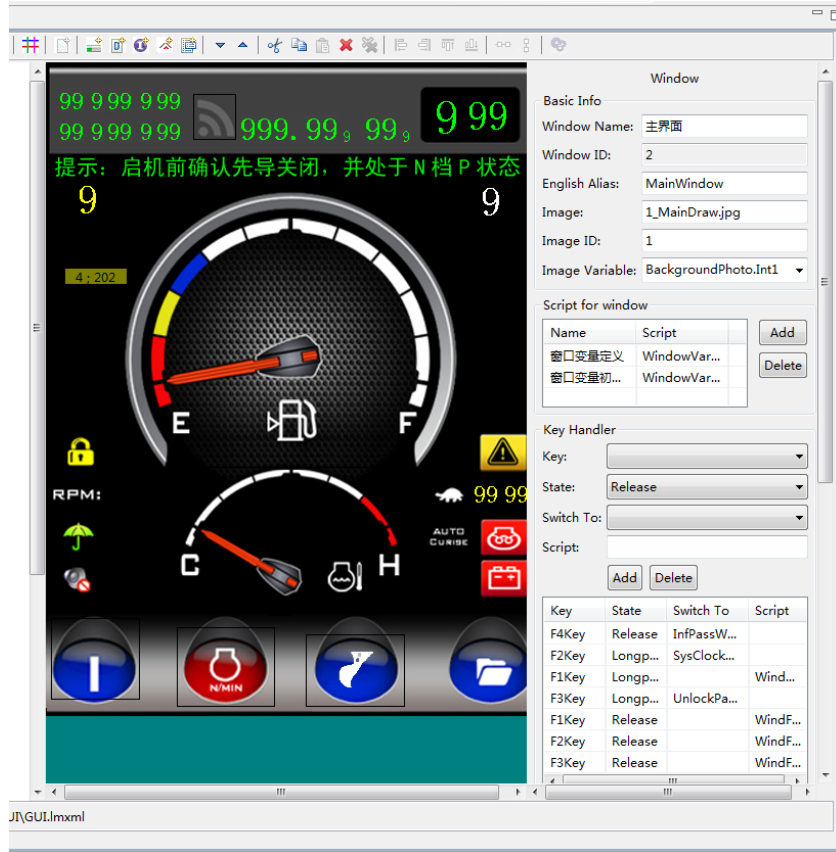
3.1、graphic development

- create a new project
- add the GUI widget
- generate GUI code

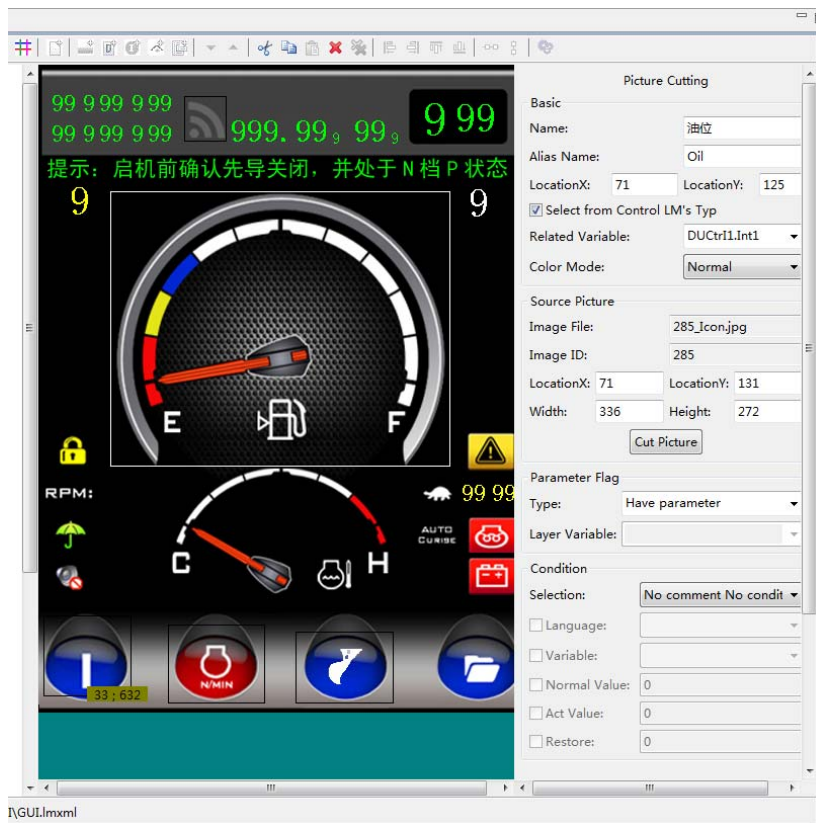
3.1.1 create a new GUI project

3.1.2 add the GUI widget

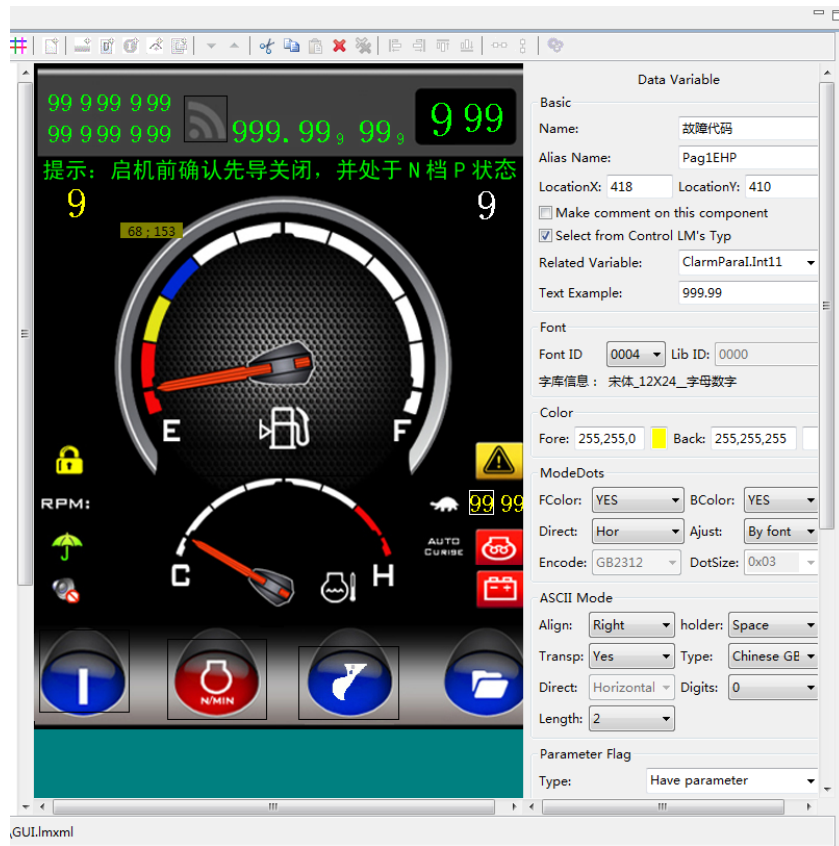
- create the widgets in one page by the software development environment



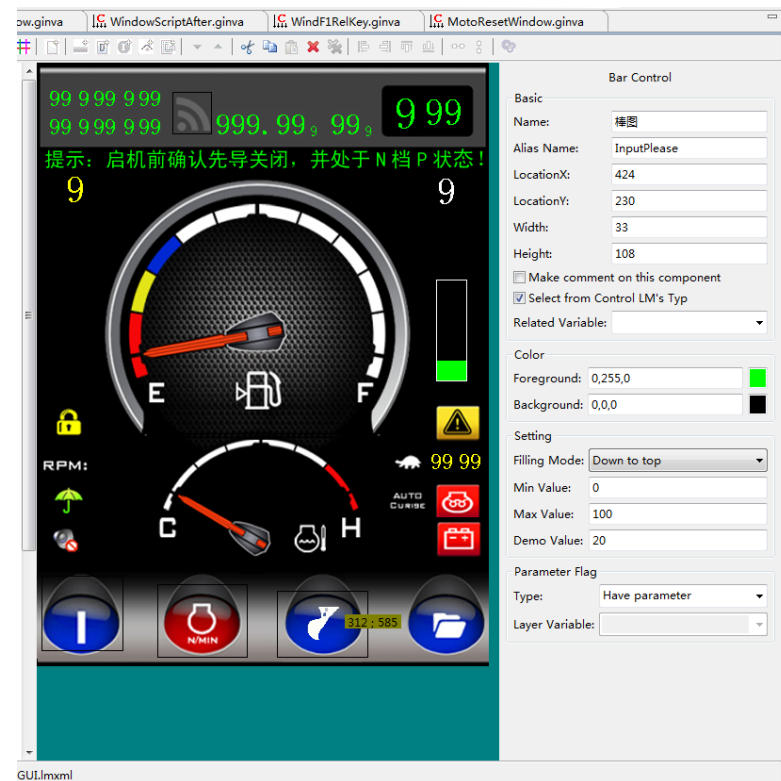
- create an icon by the software development environment



- create the number by the software development environment

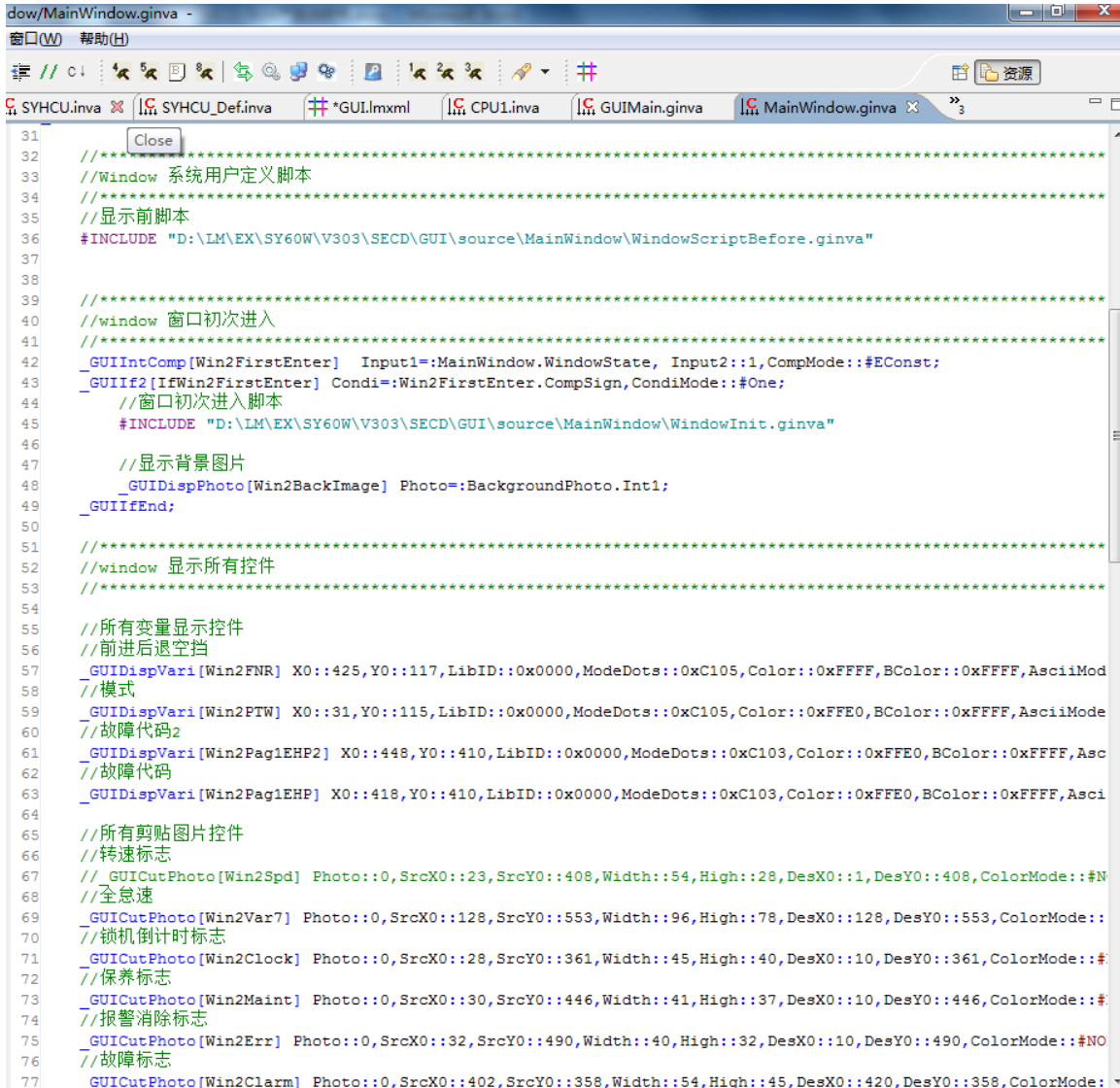


- create a bar graph



● 3.1.3 generate GUI code

Double-click the graphic, GUI code is generated automatically



```

31 //*****
32 //Window 系统用户定义脚本
33 //*****
34 //显示前脚本
35 #INCLUDE "D:\LM\EX\SY60W\V303\SECD\GUI\source\MainWindow\WindowScriptBefore.ginva"
36
37
38
39 //***** 窗口初次进入
40 //window 窗口初次进入
41 //*****
42 _GUIIntComp[Win2FirstEnter] Input1:=MainWindow.WindowState, Input2:=1,CompMode:=#EConst;
43 _GUIIf2[IfWin2FirstEnter] Condi:=Win2FirstEnter.CompSign,CondiMode:=#One;
44 //窗口初次进入脚本
45 #INCLUDE "D:\LM\EX\SY60W\V303\SECD\GUI\source\MainWindow\WindowInit.ginva"
46
47 //显示背景图片
48 _GUIDispPhoto[Win2BackImage] Photo:=BackgroundPhoto.Int1;
49 _GUIIfEnd;
50
51 //*****
52 //window 显示所有控件
53 //*****
54
55 //所有变量显示控件
56 //前进后退空挡
57 _GUIDispVari[Win2FNR] X0:=425,Y0:=117,LibID:=0x0000,ModeDots:=0xC105,Color:=0xFFFF,BColor:=0xFFFF,AsciiMod
58 //模式
59 _GUIDispVari[Win2PTW] X0:=31,Y0:=115,LibID:=0x0000,ModeDots:=0xC105,Color:=0xFFE0,BColor:=0xFFFF,AsciiMod
60 //故障代码2
61 _GUIDispVari[Win2Pag1EHP2] X0:=448,Y0:=410,LibID:=0x0000,ModeDots:=0xC103,Color:=0xFFE0,BColor:=0xFFFF,Asc
62 //故障代码
63 _GUIDispVari[Win2Pag1EHP] X0:=418,Y0:=410,LibID:=0x0000,ModeDots:=0xC103,Color:=0xFFE0,BColor:=0xFFFF,Asc
64
65 //所有剪贴图片控件
66 //转速标志
67 _GUICutPhoto[Win2Spd] Photo:=0,SrcX0:=23,SrcY0:=408,Width:=54,High:=28,DesX0:=1,DesY0:=408,ColorMode:=#N
68 //全怠速
69 _GUICutPhoto[Win2Var7] Photo:=0,SrcX0:=128,SrcY0:=553,Width:=96,High:=78,DesX0:=128,DesY0:=553,ColorMode:=#
70 //锁机倒计时标志
71 _GUICutPhoto[Win2Clock] Photo:=0,SrcX0:=28,SrcY0:=361,Width:=45,High:=40,DesX0:=10,DesY0:=361,ColorMode:=#
72 //保养标志
73 _GUICutPhoto[Win2Maint] Photo:=0,SrcX0:=30,SrcY0:=446,Width:=41,High:=37,DesX0:=10,DesY0:=446,ColorMode:=#
74 //报警消除标志
75 _GUICutPhoto[Win2Err] Photo:=0,SrcX0:=32,SrcY0:=490,Width:=40,High:=32,DesX0:=10,DesY0:=490,ColorMode:=#NO
76 //故障标志
77 _GUICutPhoto[Win2Clarm] Photo:=0,SrcX0:=402,SrcY0:=358,Width:=54,High:=45,DesX0:=420,DesY0:=358,ColorMode:=
    
```

3.3、download the photos and program

3.3.1 ready to start

1) create CODE,GUI file in the USB disk

- CODE file --- copy the LM program and GUI program

2) GUI file, create a new file —GUICFG.txt , which is the configuration file。

GUICFG.txt

GUIType: n, n is the type of display screen:

1—4.3 inch;

2---5.0 inch

3—7.0 inch

- GUILib: V



3) GUI file: create the ICON file、LIB file、PHOTO file

- LIB file---libs, such as XXXX.DZK
- PHOTO file---photos, such as XXXX.bmp
- ICON 文件夹--icons, such as XXXX.bmp

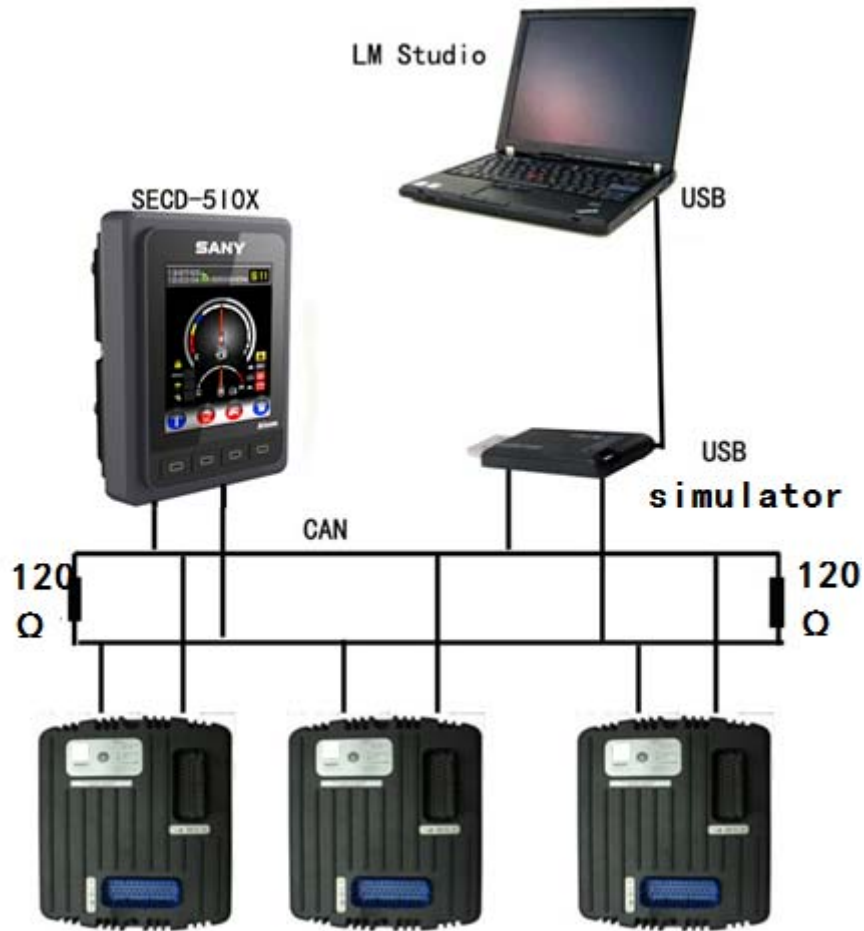


3.3.2 Start to read photos, libs, and icons from the USB disk

- 1) USB disk is connect with the display screen USB interface
- 2) delay 5 seconds, it starts to read。

Four: connect the controller

Connect with the controller by CANBus. Support CAN2.0B, CanOpen, J1939 protocol



FCC Information and Copyright

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 device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.