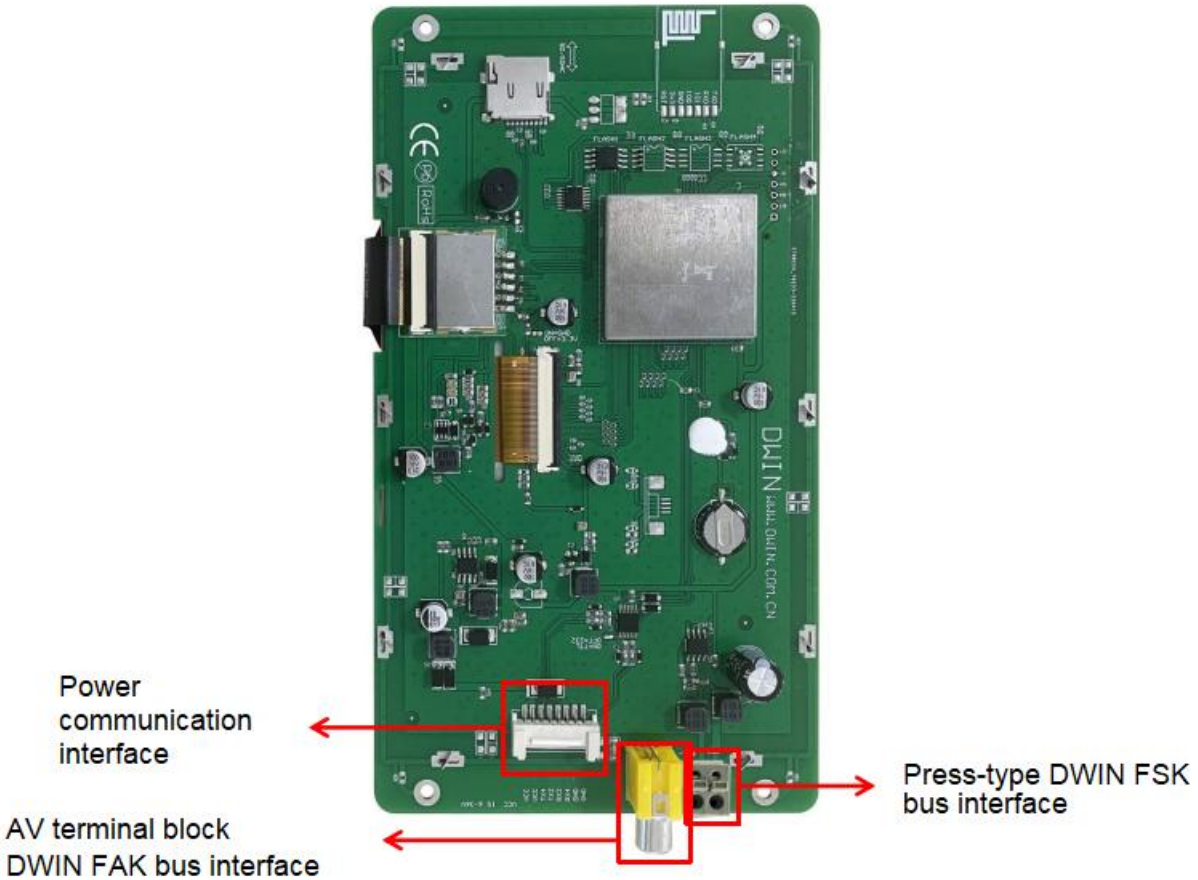
The Development Process of DWIN 26W Series Model FSK Bus Camera Screen

1. Hardware interface diagram (take DMG10600T070_26WTC as an example)



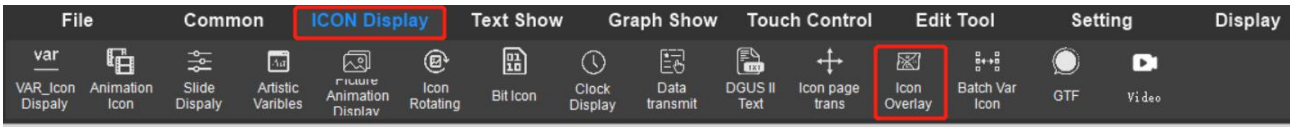
Note: The press-type DWIN FSK bus interface needs to be connected to the corresponding positive and negative poles (red positive and white negative)

2. Project file production

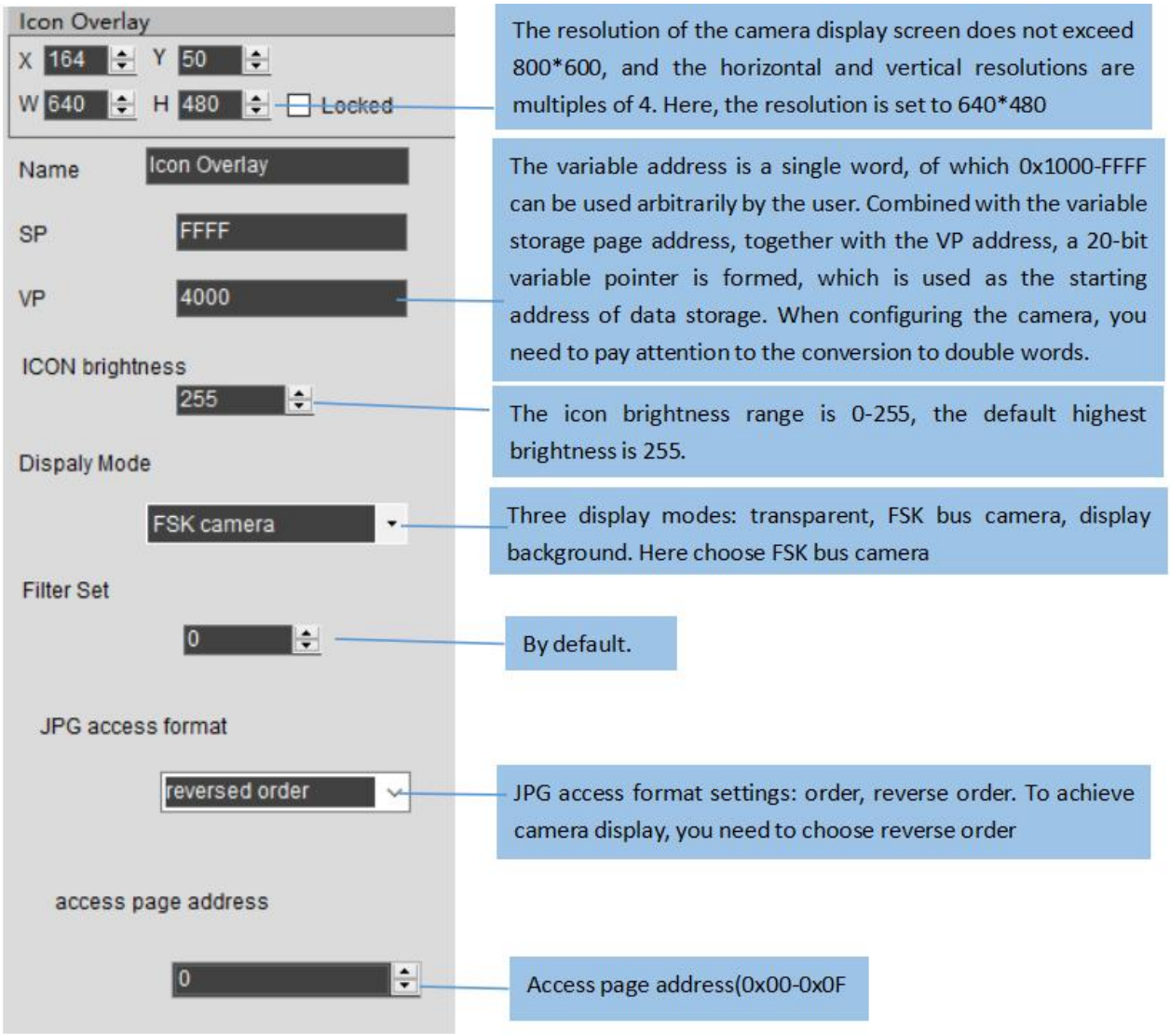
This document only configures the project file of the FSK bus camera

"T5L_DGUS2 Application Development Guide" for configuration reference.

(1) Open T5L_DGUS_V7.641 and above software, and select the Icon Overlay control.



(2) Icon overlay display control settings

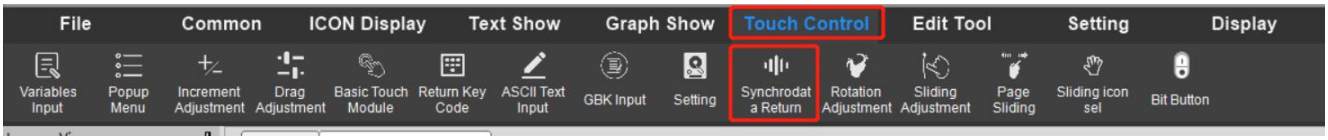


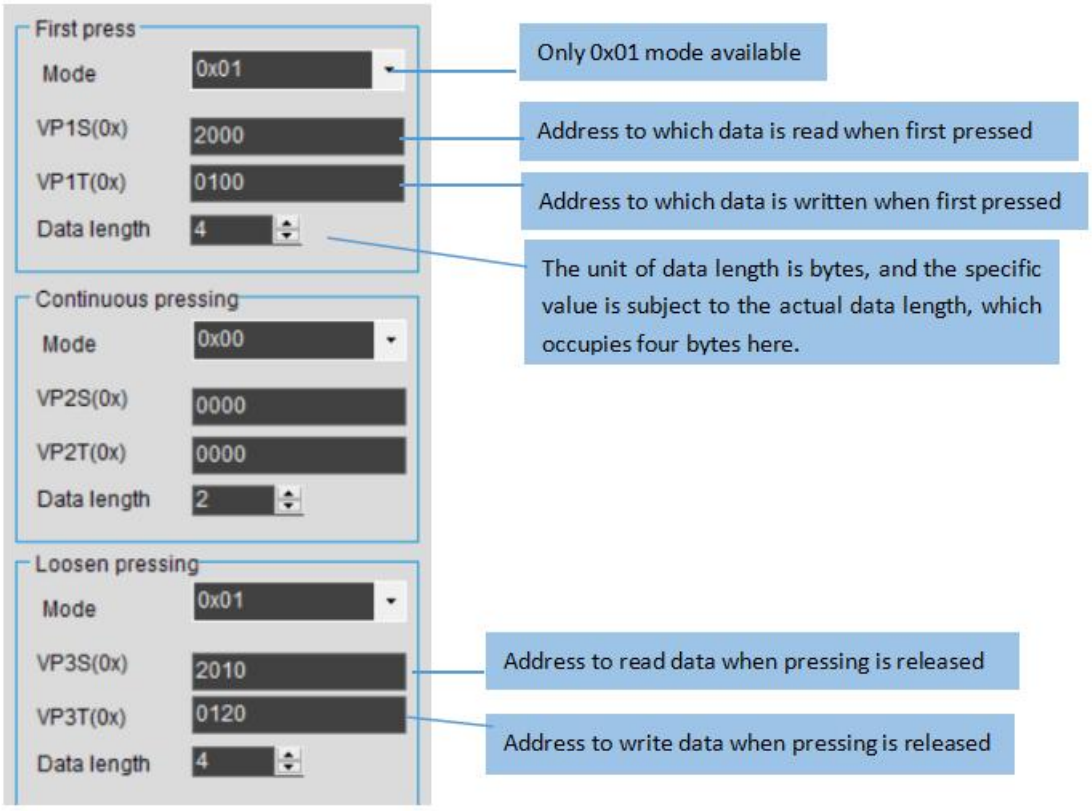
According to the T5L_DGUS2 Application Development Guide, when the icon overlay control uses the bus camera display mode, it needs to reserve storage space backwards. Taking a display screen with a resolution of 640×480 as an example, 640×480÷8192=37.5 KB can be reserved as 40KB. The number of variable addresses occupied is 40×1024÷2=20480, which is 5000 in hexadecimal, and the following control variable addresses need to start from 0x9000.

(3) Use the Synchronous Data Return control to control the FSK bus and the camera at the same time.

First Press is to send the 4-byte data of VP1S to VP1T and turn on the bus; Loosen Press is to send the 4-byte data of VP3S to VP3T,

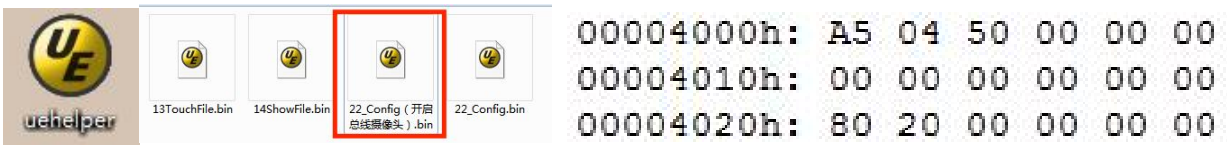
Turn on the camera. Note that the addresses of our VP1S and VP3S cannot conflict with the address of the icon overlay display space. We select 0x2000 and 0x2010 respectively. The addresses of VP1T and VP3T are fixed at 0x100 and 0x120 according to the application guide.





(4) Use the UE software to modify the 22 configuration file and cooperate with the synchronous data return control to realize the FSK bus camera.

Note that the modified 22 file needs to be renamed so as not to be overwritten by the newly generated 22 file.



UE software Rename the 22 file Edit interface

The 0x2000 address of VP1S corresponds to the 0x4000 address in the 22 file
The 0x2010 address of VP3S corresponds to the 0x4020 address in the 22 file (double word address)

The description of 22 File configuration information:

Before displaying the camera screen, you need to configure the bus, and do it through the 0x0100 system variable address. For example, configure the bus through the command:

5A A5 07 82 01 00 A5 04 50 00 Reconfigure the bus once and enable signal transmission detection

01 00 : FSK interface control address

A5: 0xA5 = reconfigure the bus once

04: Bus speed configuration, the lower the speed, the farther the communication distance, 0x04=1Mbytes/S

50: Bus response wait time, 0x01-0xFF, unit is 0.125mS.

00 : reserved, write 0x00

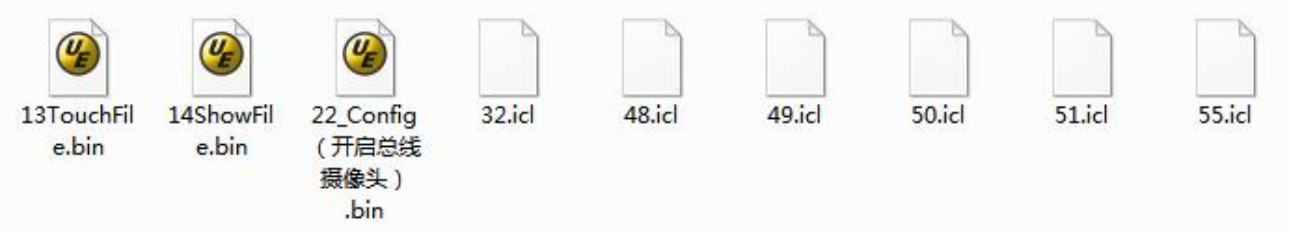
5A A5 06 82 01 20 80 20 00 Display the camera image of address 0

01 20 : Device interface 2 variable address defined by DGUS (the device interface address can be used freely within the scope, it is recommended to use it only once in a project program to avoid conflicts)

80: No. 0 device is on (.7=1 device is on, .7=0 device is off; .6-.5 is reserved, write 0; .4-.0 means device ID, 0x00-0x1E.)

20 00 : Double word address for data storage (Note: 0x2000 here is the word address, corresponding to 0x00 4000 double word address, the conversion method is 0x00 4000 /2 = 0x00 2000, take the last 16 bits)

(5) Burn the modified 22 files and other generated files into the screen.



3. Precautions:

1) DGUS software: V7.641 and above.

2) Smart screen UI kernel version: T5L_UI_DGUS2_V49_20220527 and above.

3) Camera UI kernel version: T5L_UI_FDV200, bus camera_V20_20220527 and above.

4) The factory project burns the OS program to control the opening of the camera screen. If you do the project yourself, you need to download an empty OS program to cover it, otherwise, there will be a splash screen phenomenon.

5) Modify FSK camera parameters:

The use of FSK camera needs to define the parameters of the camera. The factory default resolution is 640×480 (the resolution setting of the camera: the horizontal resolution and vertical resolution of the camera must be a multiple of 4).

Configure the 0# camera resolution of device interface 2 to 640*480, left and right mirroring.

The corresponding configuration instruction is as follow.

5A A5 0D 82 01 20 80 20 00 02 51 80 02 80 01 E0

Meaning: 01 20: Device interface 2 variable address defined by DGUS (device interface address can be used freely within the range

It is recommended to use it only once in a project program to avoid conflicts)

80 : No. 0 device is turned on (.7=1 device is turned on, .7=0 device is turned off; .6-.5 is reserved, write 0; .4-.0 means set

Backup ID, 0x00-0x1E.)

20 00: Double word address for data storage (Note: 0x2000 is the word address here, corresponding to 0x00 4000 double word address,

The conversion method is 0x00 4000 /2 = 0x00 2000, take the last 16 bits)

01 : Only transfer 2 double words

5F: Camera configuration command

80 : Mirror left and right

02 80 : Camera horizontal resolution 0x02 80 =640

01 E0 : Camera vertical resolution 0x01 E0 =480

Instruction	Data	Description
0x51	D26: Camera configuration value. .7 Left and right mirroring control, 0=normal 1=mirroring. .6 IR illumination switch, 0=off 1=on. .5-.0 Reserved, write 0. D25:D24: Camera horizontal resolution, must be a multiple of 4. D23:D22: Camera portrait resolution, must be a multiple of 4.	Camera configuration value, not saved after power down. Resolution cannot exceed 64KB memory space (800*600 is slightly larger).
0x52	D26: Camera configuration value, same as 0x51 instruction. D25:D24: Camera horizontal resolution, same as 0x51 instruction. D23:D22: Camera portrait resolution, same as 0x51 instruction. D21: FSK bus interface speed (0x00-0x04)	Camera power on parameters configuration, saved after power down. The camera will reboot once after configuration. The factory initial configuration is 00 02 80 01 E0 04.
0x5D	D26: The number of register data groups to be modified, 0x01-0x0D. D25:D0: Register data, two bytes per group (address:data), up to 13 groups.	Camera debug instruction (user should not use).
0x5F	D26: Configured camera bus address, 0x00-0x1E. Default 0x00.	Camera bus address configuration, the camera will reboot once after configuration.

6) Modify the camera ID:

The factory ID of the FSK bus camera is 0x00. If you need to display multiple cameras at the same time, you need to manually set the camera ID to distinguish between different cameras. At this time, you also need to use the interface provided by the system. Assume that the camera whose ID needs to be set is a product that has just left the factory (the camera ID is 0 at this time), the device interface 2 defined by DGUS is used, the data storage address is 0x00 4000, and when the bus is on, the command to modify the camera ID to 1 is: :

5A A5 09 82 0120 80 2000 01 5F 01 Configure Camera ID 1

01 20: The variable address of device interface 2 defined by DGUS (the device interface address can be used freely within the scope, it is recommended to use it only once in a project program to avoid conflicts)

80: No. 0 device is on (.7=1 device is on, .7=0 device is off; .6-.5 is reserved, write 0; .4-.0 means device ID, 0x00-0x1E.)

20 00: Double word address for data storage (Note: 0x2000 here is the word address, corresponding to 0x00 4000 double word address, the conversion method is 0x00 4000 /2 = 0x00 2000, take the last 16 bits)

01: Only transfer 1 double word

5F: Command

01: The configured camera bus address, 0x00-0x1E (after completing the camera bus address configuration, the camera will restart once)