

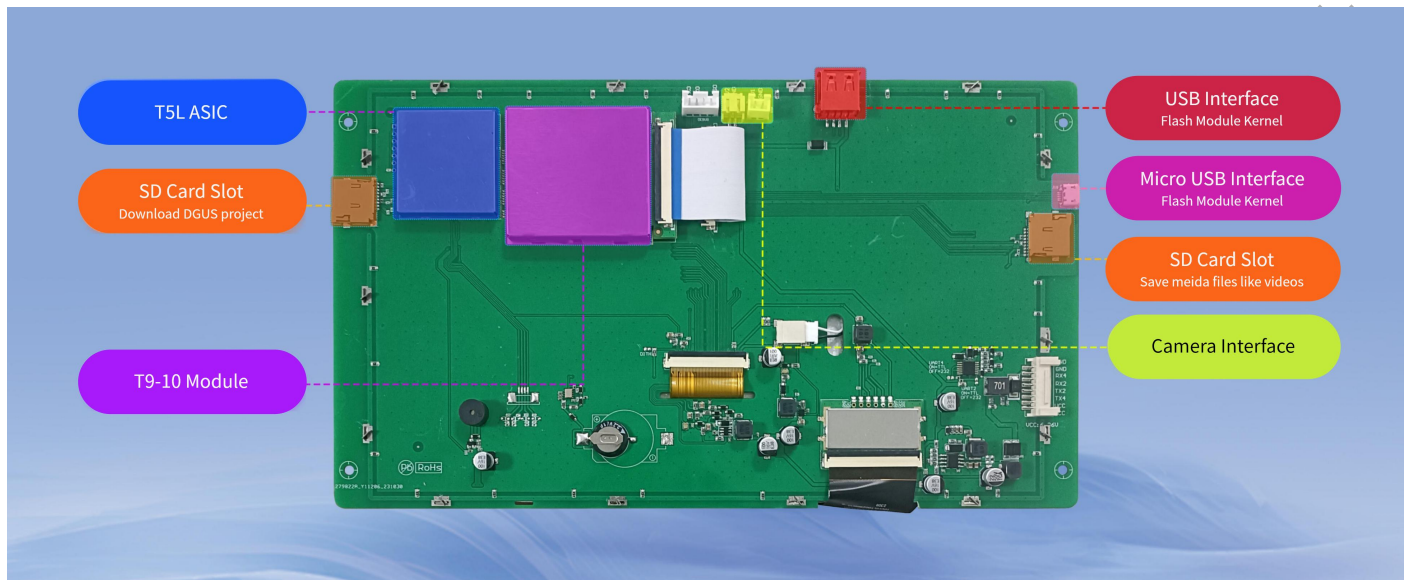
Analog Camera Smart Screen Application Guide

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1 Product Overview

The analog camera smart screens use the T5L ASIC as the main controller, combined with the T9-10 video decoder module as a coprocessor, delivering efficient video signal decoding to meet diverse industry demands for HD video display.



Product Features

- 1) Supports single channel 1080P high-definition AHD camera display, or dual channel 720P AHD cameras display on the same screen.
- 2) Supports switching display between dual CVBS camera inputs.
- 3) Supports full screen, picture in picture, floating icon, and floating character display effects.
- 4) Supports camera zooming, screenshot saving, rotation, mirroring, and more functions.
- 5) Support customized video recording function.

2 Product List

Product Selection Table

Model	Size	Resolution	LCD Type	Touch Type	Brightness (nit)	Working Volt. (V)	Working Temp. (°C)	Remark
DT322X220034Z240201A	4.3	800*480	IPS	No Touch	300	9~36	-20~70	Mass Production
DT322X220034Z240201B	4.3	800*480	IPS	Capacitive	250	9~36	-20~70	Mass Production
DT322X220034Z240201C	4.3	800*480	IPS	Resistive	200	9~36	-20~70	Mass Production
DT322X220034Z240201D	7	1024*600	IPS	No Touch	300	9~36	-20~70	Mass Production
DT322X220034Z240201E	7	1024*600	IPS	Capacitive	250	9~36	-20~70	Mass Production
DT322X220034Z240201F	7	1024*600	IPS	Resistive	200	9~36	-20~70	Mass Production
DT322X220034Z240201G	7	800*480	TN	No Touch	300	9~36	-20~70	Mass Production
DT322X220034Z240201H	7	800*480	TN	Capacitive	300	9~36	-20~70	Mass Production
DT322X220034Z240201I	7	800*480	TN	Resistive	250	9~36	-20~70	Mass Production
DT322X220034Z240201J	10.1	1024*600	IPS	No Touch	250	9~36	-20~70	Mass Production
DT322X220034Z240201K	10.1	1024*600	IPS	Capacitive	200	9~36	-20~70	Mass Production
DT322X220034Z240201L	10.1	1024*600	IPS	Resistive	150	9~36	-20~70	Mass Production
DT322X220034Z240201M	7	1280*800	IPS	No Touch	300	9~36	-20~70	Mass Production
DT322X220034Z240201N	7	1280*800	IPS	Capacitive	250	9~36	-20~70	Mass Production
DT322X220034Z240201O	7	1280*800	IPS	Resistive	250	9~36	-20~70	Mass Production
DT322X220034Z240201P	10.1	1280*800	IPS	Resistive	250	12~36	-20~70	Mass Production

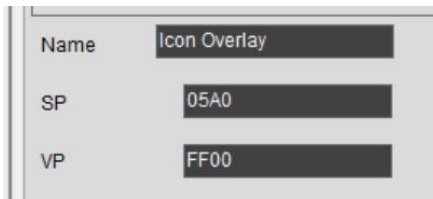
3 System Variable Interface

DT series analog camera screen is controlled through the system variable interface (0x0500~0x05BF)

reserved by the DGUS system.

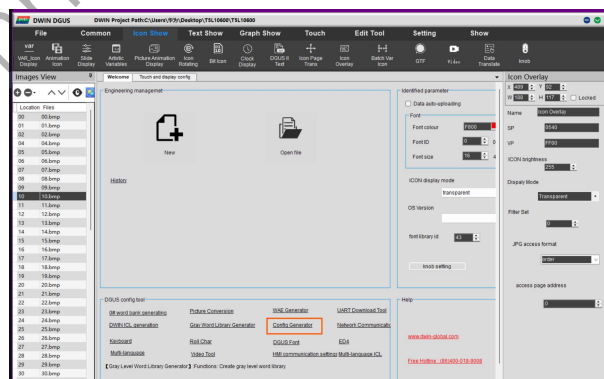
VP Address	Definition	Length (Word)	Description	Serial Command
0x0500	camera_resolution	3	Set camera resolution (typically not required). D5:4: 0x5AA5, start configuration. Clear it to zero after execution. D3:2: Represents the resolution in the X direction. D1:0: Represents the resolution in the Y direction.	Set the camera resolution to 480 × 272: 5AA5 09 82 0500 5AA5 01E0 0110
0x0503	camera_mirror	1	D1: 0x5A, Mirroring setting, cleared to zero after execution. D0: 0 = Mirroring disabled, 1 = Mirroring enabled.	Set to mirrored display: 5AA5 05 82 0503 5A01
0x0504	camera_rotate	1	D1: 0x5A, start configuration. Clear it to zero after execution. D0: Rotation angle, 0=0°, 1=90°, 2=180°, 3=270°.	
0x0505	camera_set	1	D1: 0x5A, start configuration. Clear it to zero after execution. D0: 0x00, close all; 0x01, open channel 1; 0x02, open channel 2; 0x03, open all channels.	Open all cameras: 5AA5 05 82 0505 5A03
0x0506	camera_screenshot	1	D1: 0x5A, start screenshot saving. Clear it to zero after execution. D0: 0x01, channel 1. 0x02, channel 2.	
0x0507	get_screenshot	1	D1: 0x5A=View the image of channel 1. 0xAA=View the image of channel 1, and send it via serial port. 0x5B=View the image of channel 2. 0xAB=View the image of channel 2 and send it via serial port. Clear it to zero after execution. D0: 00=view in reverse order, 01=view in sequential order	

VP Address	Definition	Length (Word)	Description	Serial Command
0x0508	set_camera_type	1	D1: 0x5A=Start setting, clear it to zero after execution D0: Corresponding setting data. 0x01=N-mode of CVBS. 0x02=P-mode of CVBS. 0x0A=AHD 720P. 0x10=AHD_1080P. Caution: Changing camera settings may cause the kernel to restart. The default factory setting is AHD_1080P mode. Once modified, the latest configuration will be saved on the screen.	Set the camera signal source to AHD_720P: 5AA5 05 82 0508 5A0A
0x0509	set_n5_reg	3	For factory debugging purposes. Do not write data.	
0x050C	camera_auto_config	1	D1: 0x5A=When the camera is turned on, the image resolution is automatically set according to the size of the interface controls. Other values are invalid. D0: 0x5A=The function of automatically opening the camera is not processed when switching pages. Other value=The function of automatically opening the camera is processed.	Automatically open the camera and adjust the resolution: 5AA5 05 82 050C 5A00
0x050D	reserved	21	Undefined.	
0x051E	camera_state	1	For factory debugging purposes. Do not write data.	
0x051F	R11_state	1	For factory debugging purposes. Do not write data.	
0x0520-0x053F	camera_driver_info	32	For factory debugging purposes. Do not write data.	
0x0540-0x055F	camera1_display_size	32	The display size of camera 1 set by the Data Transmit Control, which size is consistent with the Icon Overlay control.	
0x0560-0x057F	Camera2_display_size	32	The display size of camera 2 set by the Data Transmit Control, which size is consistent with the Icon Overlay control.	

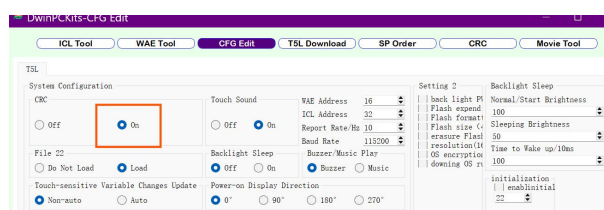
VP Address	Definition	Length (Word)	Description	Serial Command
0x0580-0x059F	camera1_display_sp	32	Descriptor pointer of the "Icon Overlay" control for Camera 1. Set the control attributes as shown in the figure below. 	
0x05A0-0x05BF	camera2_display_sp	32	Descriptor pointer of the "Icon Overlay" control for Camera 2. Set the control attributes as shown in the figure below. 	

Note:

- If you need to view the saved pictures, turn off all cameras.
- Save the screenshot to the SD card. Create folders "1" and "2" in the root directory to save the screenshots of channel 1 and channel 2 respectively.
- Please use the CFG file to enable the verification function of UART 2 and UART 4. CFG file can be modified by using the DGUS tool, as shown in the following figure.



CFG Generator



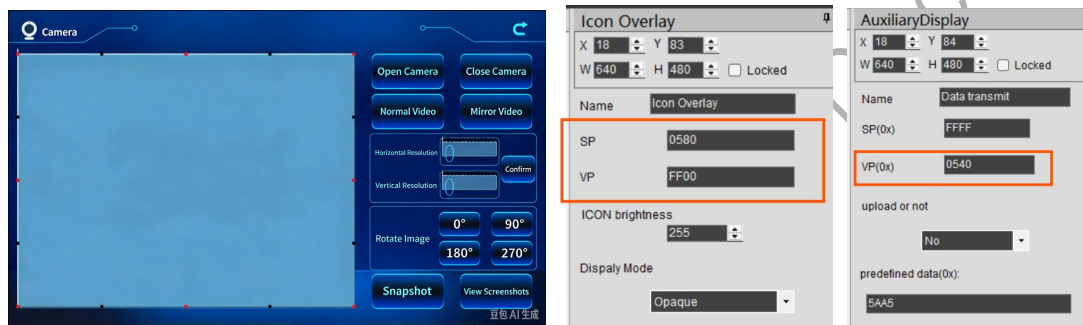
CRC Check Enabled

4 Application Demo

4.1 DGUS Project Setting

The DGUS project for simulating camera interface requires two controls: "Data Transmit"  and

"Icon Overlay" , stacked together with identical sizes. The predefined data "5AA5" in "Data Transmit" control means that the camera will automatically open upon entering the page, Writing 0x5A00 to address 0x050C will auto-resize the camera image to match the control size.



4.2 Modify Camera Configuration Via UART

The camera signal source can be modified either by sending commands via the serial port or through the "Return Key Code" control in DGUS.

Method 1: Send a Serial Command

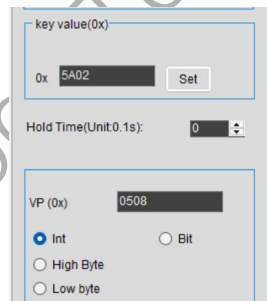
Command: 5AA5 05 82 0508 5A02

Meaning: Frame header | Command length | 82 (Write Variable Space) | System variable address | AHD_720P signal source

Result: Sets the AHD analog camera input source to 720P, allowing dual-channel video to be displayed simultaneously.

Method 2: Setting via DGUS Control

By configuring the "Key Code Return" control, you can switch the signal source to "AHD_720P" via touch. Refer to the figure below for parameter settings.



5 Camera Connection

Common AHD camera interfaces are generally aviation connectors. Refer to the figure below to connect the camera to the power supply and the screen separately.

Camera Aviation Connector Definition (Male)



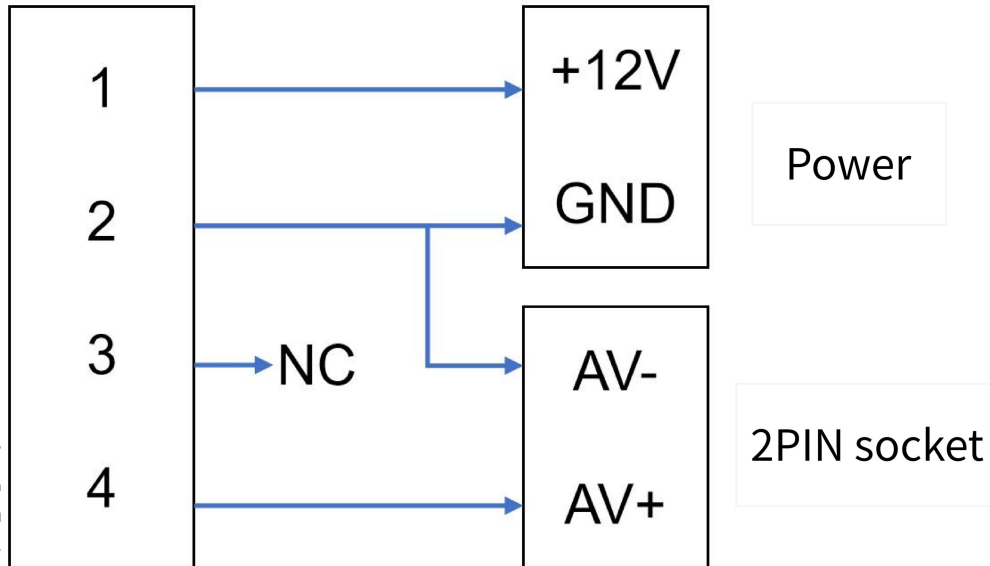
Connect to Aviation Camera



Camera Aviation Connector Definition (Female)



Connect to Host or Display



6 FAQ

- [1]. Why does the screen flicker or fail to display the camera image after re-flashing the kernel?

The kernel and C51 files for this product series are dedicated versions. Flashing files of other versions may cause abnormal screen display. If this occurs, please contact DWIN staff to obtain the correct version files and re-flash them.

- [2]. Which analog cameras can be used?

For AHD cameras, AHD 720/1080P format cameras can be selected; for CVBS cameras, NTSC/PAL formats can be selected. For more details, please contact DWIN sales to obtain the "Multimedia Series Smart Screen Accessory Selection Guide," which includes verified camera materials.

7 Revision Record

Version	Date	Description	Translated By
V1.0	2024-06-06	First Edition	Xu Ying
V1.1	2024-07-25	Add the description about CVBS camera	Xu Ying
V1.2	2026-10-10	Reproduce the content of the application guide.	Jiang Yi

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Thank you all for continuous support of DWIN, and your approval is the driving force of our progress!