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# **GT Series TUCAM-API Properties & Capabilities**



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## 1. Before Use

This document explains the supported properties and capabilities of the GT series cameras and how to control them through TUCAM-API. Before use them, please understand the basic concepts of the TUCAM-API and SDK.

The GT series cameras in the documentation include:

Camera Model	Version	Name
GT 2.0	V1.0	GT 2.0
GT 5.0	V1.0	GT 5.0
GT 12	V1.0	GT 12

## 2. Reference List

### Note:

- 1) Macro definitions that are not listed indicates that they are not supported.
- 2) ●: supported, ○: not supported

### 2.1. Capability reference table (prefix "TUIDC\_")

Camera Model	RESOLUTION (0x00)	BITOFDEPTH (0x02)	ATEXPOSURE (0x03)	HORIZONTAL (0x04)
GT 2.0	●	●	●	●
GT 5.0	●	●	●	●
GT 12	●	●	●	●

Camera Model	VERTICAL (0x05)	ATWBALANCE (0x06)	ATLEVELS (0x08)	HISTC (0x0A)	CHANNELS (0x0B)
GT 2.0	●	●	●	●	●

GT 5.0	•	•	•	•	•
GT 12	•	•	•	•	•

Camera Model	FLTCORRECTION (0x0F)	VERCORRECTION (0x13)	MONOCHROME (0x14)
GT 2.0	•	•	•
GT 5.0	•	•	•
GT 12	•	•	•

Camera Model	ENABLEPOWEEFREQUENCY (0x18)	ROTATE_R90 (0x19)	ROTATE_L90 (0x1A )	NEGATIVE (0x1B )
GT 2.0	•	•	•	•
GT 5.0	•	•	•	•
GT 12	•	•	•	•

## 2.2. Property reference table (prefix "TUIDP\_")

Camera Model	GLOBALGAIN (0x00)	EXPOSURETM (0x01)	BRIGHTNESS (0x02)	SHARPNESS (0x05)
GT 2.0	•	•	•	•
GT 5.0	•	•	•	•
GT 12	•	•	•	•

Camera Model	NOISELEVEL (0x06)	GAMMA (0x08)	CONTRAST (0x09)	LFTLEVELS (0x0A)	RGTLEVELS (0x0B)
GT 2.0	•	•	•	•	•
GT 5.0	•	•	•	•	•
GT 12	•	•	•	•	•

Camera Model	CHNLGAIN (0x0C)	SATURATION (0x0D )	POWEEFREQUENCY (0x 13)	ENHANCE_STRENGTH (0x 16)
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GT 2.0	•	•	•	•
GT 5.0	•	•	•	•
GT 12	•	•	•	•

## 3. Detailed Reference Table

### Note:

The camera models not listed indicate that the camera is not supported.

### 3.1. Capability reference Table

#### 3.1.1. TUIDC\_RESOLUTION

Camera Model	Range	Default	Step	Description
GT 2.0	[0, 0]	0	0	0: "1920x1080"
GT 5.0	[0, 1]	0	1	0: "2560x1920" 1: "1600x1200"
GT 16	[0, 1]	0	1	0: "4000x3000" 1: "2592x1944"

#### 3.1.2. TUIDC\_BITOFDEPTH

Camera Model	Range	Default	Step	Description
GT series	[8, 8]	8	0	8:8Bit data bits

#### 3.1.3. TUIDC\_ATEXPOSURE

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	1	1	0: Manual exposure mode

				1: Automatic exposure mode
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### 3.1.4. TUIDC\_HORIZONTAL

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0: Non-horizontal mirror state 1: Horizontal mirror state

### 3.1.5. TUIDC\_VERTICAL

Camera Model	Range	Default	Step	Description
GT full series	[0, 1]	0	1	0: Non-horizontal mirror state 1: Horizontal mirror state

### 3.1.6. TUIDC\_ATWBALANCE

Camera Model	Range	Default	Step	Description
GT series	[0, 2]	1	1	0: Manual white balance state 1: Automatic white balance state 2: Single white balance state (reserved)

### 3.1.7. TUIDC\_ATLEVELS

Camera Model	Range	Default	Step	Description
GT series	[0, 3]	0	1	0: Manual color scale status 1: Automatic left color scale state (must open histogram statistics) 2: Automatic right color scale state (must open histogram statistics) 3: Automatic left and right color scale state (must open histogram statistics)

### 3.1.8. TUIDC\_HISTC

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0: Close the histogram data statistics (the auto color level is invalid) 1: Open the histogram data statistics (the auto color level is valid)

### 3.1.9. TUIDC\_CHANNELS

Camera Model	Range	Default	Step	Description
GT series	[0, 3]	0	1	0: Shared channel (RGB or Gray) 1: Red channel 2: Green channel 3: Blue channel

### 3.1.10. TUIDC\_FLTCORRECTION

Camera Model	Range	Default	Step	Description
GT series	[0, 3]	0	1	0: Close the flat-field correction 1: Grab the frame data 2: Calculate the flat-field correction 3: Open level field correction (successful calculation becomes effective)

### 3.1.11. TUIDC\_VERCORRECTION

Camera Model	Range	Default	Step	Description
GT full series	[0, 1]	1	1	0: close the vertical mirror correction 1: open the vertical mirror correction



				(Windows system Default)
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### 3.1.12. TUIDC\_MONOCHROME

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0: Close the monochrome state 1: Open the monochrome state

### 3.1.13. TUIDC\_ENABLEPOWEEFREQUENCY

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0:Close the power frequency and is enabled 1:Open the power frequency and is enabled

### 3.1.14. TUIDC\_ROTATE\_R90

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0:Image original state 1:rotate the image by 90 degrees to the right

### 3.1.15. TUIDC\_ROTATE\_L90

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0:Image original state 1:rotate the image by 90 degrees to the left

### 3.1.16. TUIDC\_NEGATIVE

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0:Close the negative chip mode

				1:Open the negative chip mode
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## 3.2. Property Reference Table

### 3.2.1. TUIDP\_GLOBALGAIN

Camera Model	Range	Default	Step	Description
GT 2.0	[1, 63]	17	1	The larger the value, the higher the brightness, but the noise increases accordingly
GT 5.0				
GT 12				

### 3.2.2. TUIDP\_EXPOSURETM

Camera Model	Range	Default	Step	Description
GT series	[0, -]	-	-	The range and step of the exposure time is related to the resolution and minimum exposure time, and the range is obtained through the interface.

### 3.2.3. TUIDP\_BRIGHTNESS

Camera Model	Range	Default	Step	Description
GT 2.0	[0, 15]	13	1	Valid in auto exposure state
GT 5.0				
GT 12				

### 3.2.4. TUIDP\_SHARPNESS

Camera Model	Range	Default	Step	Description
GT 2.0	[0, 15]	2	1	Sharpening level, the larger the value, the greater the sharpening intensity
GT 5.0				

GT 12				
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### 3.2.5. TUIDP\_NOISELEVEL

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0: Close noise reduction 1: Open noise reduction

### 3.2.6. TUIDP\_GAMMA

Camera Model	Range	Default	Step	Description
GT series	[1, 63]	28	1	Gamma value

### 3.2.7. TUIDP\_CONTRAST

Camera Model	Range	Default	Step	Description
GT series	[0, 15]	8	1	Contrast value

### 3.2.8. TUIDP\_LFTLEVELS

Camera Model	Range	Default	Step	Description
GT series	[0, 254]	0	1	8 Bit data

### 3.2.9. TUIDP\_RGTLEVELS

Camera Model	Range	Default	Step	Description
GT series	[1, 255]	255	1	8 Bit data

### 3.2.10. TUIDP\_CHNLGAIN

Camera Model	Range	Default	Step	Description
GT series	[0, 511]	256	1	Gain value of the corresponding channel (green channel not supported)

### 3.2.11. TUIDP\_SATURATION

Camera Model	Range	Default	Step	Description
GT series	[0, 15]	8	1	Saturation value

### 3.2.12. TUIDP\_POWEEFREQUENCY

Camera Model	Range	Default	Step	Description
GT series	[0, 1]	0	1	0: Power frequency: 50 MHZ 1: Power frequency: 60 MHZ

### 3.2.13. TUIDP\_ENHANCE\_STRENGTH

Camera Model	Range	Default	Step	Description
GT series	[0, 63]	20	1	Enhanced (permeability)