DC100 Thermal camera Guide

Release Version：V1.0.0

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Security Level： □Top-Secret □Secret □Internal ■Public

Overview

This document is designed to help developers quickly access the SDK for development and preview device images, temperature measurements, serial port transparent transmission, and other features using the SDK.

Product Version

Chipset	Kernel Version
RV1126	Linux 4.19

Intended Audience

This document (this guide) is mainly applicable to the following engineers:

- Software development engineer
- Software Development Engineer

Revision History

Version	Author	Date	Revision History
V1.0.0	LEE	20xx-xx-xx	Initial version

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DC100 TOF Sensor Guide

1. Overview

1.1 Overview

DC100 SDK supports thermal imaging camera function. The temperature measuring products can be used in industry measurement, power station measurement, security & surveillance measurement, and machine vision etc.

1.2 Product Specification

- Resolution：640 x 512.
- Frame rate：50Hz.
- NETD： ≤40mK.
- Measuring Range：-20℃ ~ +150℃, 0℃ ~ +550℃.
- Measuring Accuracy： ±3℃ or ±3% of reading (The larger value shall prevail)
  ambient temperature of -20℃~60℃
- Operating Temperature：-40℃ ~ +80℃ (Measuring temp. at -20℃ ~ +60℃).

2. API Introduction

2.1 API Reference

2.1.1 Create Handle

【Description】

Create Handle

【Grammar】

IRNETHANDLE sdk_create();

【Parameter】

No.

【Return value】

Return value	Description
Handle	Used to pass parameters through other interfaces.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.2 Initialize

【Description】

Initialize SDK and load SDK resources.

【Grammar】

```
int sdk_loginDevice(IRNETHANDLE hHandle);
```

【Parameter】

Parameter name	Description	Input/Output
hHandle	sdk_create() return value.	Input

【Return value】

Return value	Description
0	Success.
-1	Fails.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.3 Release SDK

【Description】

Uninstall SDK and release SDK resources.

【Grammar】

```
void ReleaseSDK(IRNETHANDLE p);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

【Return value】

No.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.4 Search device

【Description】

Search device.

【Grammar】

```
int SearchDevice(IRNETHANDLE p, DeviceLst &devList);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
pDevicesList	DeviceLst structure reference	Output.

【Return value】

Return value	Description
0	Success.
-1	Fails.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.5 Open Device

【Description】

Open the device and register the image callback and temperature callback.

【Grammar】

```
bool OpenDevice (IRNETHANDLE p, int iGetCurSel, int portIndx);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
iGetCurSel	Device ID.	Input.
portIndx	Serial port number	Input

【Return value】

Return value	Description
True	Success.
False	Fails.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.6 Register image callback

【Description】

Register image callback.

【Grammar】

```
void  __stdcall SetVideoCallBack (IRNETHANDLE p, VideoCallBack pVideoCallBack, void* pContext);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
pVideoCallBack	Image callback function	Input.
pContext	Device context	Input

【Callback function description】

```
typedef void(*VideoCallBack)(unsigned char* pBuffer, int iWidth, int iHeight, void* pContext);
```

Parameter name	Description	Input/Output
pBuffer	Image data buffer pointer.	Output

iWidth	Area array width.	Output
iHeight	Area array height.	Output
pContext	Device context.	Output

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.7 Register temperature callback

【Description】

Register temperature callback.

【Grammar】

```
void __stdcall SetTempCallBack (IRNETHANDLE p, TempCallBack pTempCallBack, void* pContext);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
pTempCallBack	Temperature callback function	Input.
pContext	Device context	Input

【Callback function description】

```
typedef void(*TempCallBack)(unsigned char* pBuffer, int iWidth, int iHeight, void* pContext);
```

Parameter name	Description	Input/Output
pBuffer	Image data buffer pointer.	Output
iWidth	Area array width.	Output
iHeight	Area array height.	Output
pContext	Device context.	Output

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.8 Close device

【Description】

Disconnect, stop image preview.

【Grammar】

void CloseDevice (IRNETHANDLE p);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

【Return value】

No.

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.9 Get communication type

【Description】

Get communication type.

【Grammar】

bool CommunicationType (IRNETHANDLE p);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

【Return value】

Return value	Description
True	serial communication.
False	Get/set zoom

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.10 Communication read command interface

【Description】

Get communication type.

【Grammar】

int ReadHandle (IRNETHANDLE p, char* buf, int* pLen);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
buf	Returns the instruction buffer pointer.	Output
pLen	Return command length	Output

【Return value】

Return value	Description
0	Success.
201	Failed to open serial port.
202	Failed to get serial port parameters
203	Failed to set serial port parameters
204	Failed to set serial port timeout
205	Failed to send data
206	Failed to receive data
207	Failed to close serial port
208	Send timeout
209	Receive timeout
210	Get zoom failed
211	Set zoom failed

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.11 Communication write command interface

【Description】

Get communication type.

【Grammar】

int WriteHandle (IRNETHANDLE p, char* buf, int pLen);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
buf	Send command buffer pointer.	Output
pLen	Send command length.	Output

【Return value】

Return value	Description
0	Success.
201	Failed to open serial port.
202	Failed to get serial port parameters
203	Failed to set serial port parameters
204	Failed to set serial port timeout
205	Failed to send data
206	Failed to receive data
207	Failed to close serial port
208	Send timeout
209	Receive timeout
210	Get zoom failed
211	Set zoom failed

【Requirement】

Header file：USBSDK.h
Library file：libUSBSDK.so

2.1.12 Get core type

【Description】

Get core type.

【Grammar】

int CoreType (IRNETHANDLE p);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

【Return value】

Return value	Description
0	Failed.
Other	Success.

2.1.13 Get temperature measurement type

【Description】

Get temperature measurement type.

【Grammar】

int TempMeasureType (IRNETHANDLE p);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

【Return value】

Return value	Description

0	Failed.
Other	Success.

2.1.14 Color palette switching

【Description】

Color palette switching.

【Grammar】

int sdk_set_color_plate (IRNETHANDLE p, int iType, int color_plate);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
iType	CoreType() return value;	Input
color_plate	Color palette type	Input

【Return value】

Return value	Description
0	Success.
-1	Failed

2.1.15 Color plate reading

【Description】

Color plate reading.

【Grammar】

int sdk_get_color_plate (IRNETHANDLE p, int iType, int* color_plate);

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input

iType	CoreType() return value;	Input
color_plate	Color palette type	Output

【Return value】

Return value	Description
0	Success.
-1	Failed

2.1.16 Read temperature unit

【Description】

Read temperature unit.

【Grammar】

```
int sdk_read_temp_unit (IRNETHANDLE p, unsigned char* ucUnit);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
ucUnit	0: Celsius, 1: Kelvin, 2: Fahrenheit	Output

【Return value】

Return value	Description
0	Success.
-1	Failed

2.1.16 Switch temperature unit

【Description】

Switch temperature unit.

【Grammar】

```
int sdk_set_temp_unit (IRNETHANDLE p, unsigned char ucUnit);
```

【Parameter】

Parameter name	Description	Input/Output
p	sdk_create() return value.	Input
ucUnit	0: Celsius, 1: Kelvin, 2: Fahrenheit	Intput

【Return value】

Return value	Description
0	Success.
-1	Failed

2.2 Data Type

2.2.1 MAX_DEVICE_NUM

【Description】

Max device number.

【Definiton】

```
#define MAX_DEVICE_NUM 50
```

2.2.2 DeviceLst

【Description】

Device information and list.

【Definiton】

```
struct DeviceInfo
{
    int id;         //Device Id
    char cName[MAX_PATH];      //the Device name
};

struct ComName
{
    char cComPort[MAX_PATH];      //the Device name
};

struct DeviceLst
{
    int iComCount;      //Number of serial ports
    int iNumber;            //Device Count
    DeviceInfo DevInfo[MAX_DEVICE_NUM];
    ComName ComNameInfo[MAX_DEVICE_NUM];
};
```