

SilkyEvCam

Event Based Camera Specification

Product name : SilkyEvCam

Model name : EvC3A

Rev.1.0.0

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Contents

Revision History	2
General description and application	2
Functions and Features	2
Referenced Documents	3
USE RESTRICTION NOTICE	3
Use Restrictions	3
Design for Safety	3
Export Control	3
No License Implied	4
Governing Law	4
Other Applicable Terms and Conditions	4
1 Summary of Specifications	5
1.1. Table 1 List of Specifications	5
1.2. Table 3 List of USB pin description	5
1.3. Table 4 List of IX Connector pin (Synchronization signals) description	6
1.4. Requirements	7
1.5. Table 4 List of LED Function	7
1.6. Reset SW Function	7
1.7. Notes on writing to firmware	7
2 Operating Temperature	7
3 Operating Condition	8
4 Block Diagram	8
5 Power Structure	8
6 Dimension	9
7 Notes on Handling and Assembly	10
7.1. Notes on Handling	10
8 Packing specification	11

Revision History

Revision	Content	Date
Rev.1.0.0	Create new	2020.9.1

General description and application

SilkyEvCam USB consists of a PROPHESEE Event Based Vision Sensor (PPS3MVCD), a sensor board that outputs MIPI signals from FPGA, and an interface board that converts MIPI signal to USB3.1 signal.

The Sync IN/OUT signals for synchronizing multiple SilkyEvCam are also interfaced with the IX connector.

This document describes SilkyEvCam product specifications.

Please refer to the information site provided by PROPHESEE for the specifications of the sensor(PPS3MVCD) and related applications.

See the CenturyArks website for the latest information.

Functions and Features

- ◆ PPS3MVCD Gen3.1(VGA) PROPHESEE Event Based Vision Sensor
- ◆ Wide Dynamic Range (up to 120dB)
- ◆ Contrast Detection (CD) events only
- ◆ Power supply and data exchange with standard USB 3.0 interface
- ◆ Event time-stamping with microsecond (μ s) precision
- ◆ Cypress CX3 is used for conversion from MIPI to USB signal
- ◆ Driver: Built-in SPI Flash
- ◆ Boot function: SPI Flash
- ◆ I/O interface: USB 3.0 (Type-C connector)
- ◆ External pins to connect an external trigger source : IX Connector (need cross wire cable)
- ◆ Input power: 5V (From USB connector)
- ◆ Place the thermal sensor on the back of the PPS3MVCD
- ◆ Camera housing with CS-mount
- ◆ Size 30mmx30mmx35mm (w/o Lens) compact and light, easy installation anywhere
- ◆ Consumption current (max.): About 400mA
- ◆ PROPHESEE support SDK named METAVISION and it allow customer to develop edge processing including AI
- ◆ Metavision Designer is available for Linux Ubuntu 16.04 and 18.04 64-bit and Windows 10 64-bits.

[Optional Turn Key Package.]

- ◆ Lens D-FOV 70°(ref. COMPUTAR-M0814-MP2 w/ C-CS connection ring)
- ◆ USB 3.0 Type-C cable with lock screw (1.2m)
- ◆ Mini tripod
- ◆ Mobile case

Referenced Documents

No.	Document Title	Revision	Published Date
1	PPS3MVCD Data sheet	1.1	Feb.2020
2	METAVISION™ Intelligence (PROPHESSEE website)	2.1	Oct.2020

USE RESTRICTION NOTICE

This USE RESTRICTION NOTICE ("Notice") is for customers who are considering or currently using the event sensor camera products ("Products") set forth in this specifications book. CenturyArks Corporation ("CA") may, at any time, modify this Notice which will be available to you in the latest specifications book for the Products. You should abide by the latest version of this Notice. distributor has its own use restriction notice on the Products, such a use restriction notice will additionally apply between you and the distributor. You should consult a sales representative of the distributor of on such a use restriction notice when you consider using the Products.

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- The Products are intended for incorporation into such general electronic equipment as office products, communication products, measurement products, and home electronics products in accordance with the terms and conditions set forth in this specifications book and otherwise notified by CA from time to time.
- You should not use the Products for critical applications which may pose a life- or injury-threatening risk or are highly likely to cause significant property damage in the event of failure of the Products. You should consult your sales representative beforehand when you consider using the Products for such critical applications. In addition, you should not use the Products in weapon or military equipment.
- CA disclaims and does not assume any liability and damages arising out of misuse, improper use, modification, use of the Products for the above-mentioned critical applications, weapon and military equipment, or any deviation from the requirements set forth in this specifications book.
- CA is not responsible for any direct or indirect damage such as loss of stored data or damage to equipment caused by failure or use of this product.
- When installing and using this product, be sure to follow the warnings and precautions issued by the PC manufacturer and peripheral device manufacturer.
- This products and the application provided by CA do not guarantee the operation for all Computers.

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- CA is making continuous efforts to further improve the quality and reliability of the Products; however, failure of a certain percentage of the Products is inevitable. Therefore, you should take sufficient care to ensure the safe design of your products such as component redundancy, anti-conflagration features, and features to prevent mis-operation in order to avoid accidents resulting in injury or death, fire or other social damage as a result of such failure.

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Other Applicable Terms and Conditions

- The terms and conditions in the CA additional specifications, which will be made available to you when you order the Products, shall also be applicable to your use of the Products as well as to this specifications book. You should review those terms and conditions when you consider purchasing and/or using the Products.

1 Summary of Specifications

1.1. Table 1 List of Specifications

SilkyEvCam		Specifications	
Event Based Vision sensor	Model	PPS3MVCD (PROPHESSEE)	
	Image size	Type 3/4 " (Diagonal 12mm)	
	Module effective pixels	VGA (640 (H) x 480 (V))	
	Pixel size	15um x 15um	
	Typical Latency	200us	
Output	Interface (event data & control)	USB 3.0 (USB Type-C™ connector)	
	Interface (Sync/Trigger)	IX Series Connector (IX80G-B-10P : HIROSE) (Plug: IX30G-B-10S-CV(7.0) IX31G-B-10S-CV(7.0))	
Camera	Power supply	USB Power (VBUS)	5.0 V
	Lens Mount type	C/CS Mount	
	Wide Dynamic Range	>120dB	
	Operating temperature	T operation	0 ~ + 50 °C
	Storage temperature	T storage	- 30 ~ + 80 °C
	Current consumption	500mA(max) , 200~300mA(Ave.)	
	Dimensions / Weight (w/o Lens)	30mm (W) x 30mm (H) x 36mm (D) / 40g	
	Accessories	USB3.0 Type-C™ Cable 1.2m (w/ rock screw)	
	PID/VID (Hex)	Vendor ID : 31F7 Product ID : 0002	
Standard Lens	Model	M0814-MP2 (computer)	
	Focal length	8mm	
	F value	F1.4 - F16C	
	Angle of view	70deg	
	Focus range	100mm to infinity	
	Size / Weight	Φ33.5mm x 28.2mm / 62.6g	
Others	Turn Key Pack	Standard Lens / Mini tripod / Hardcase	
	SDK support by PROPHESEE	METAVISION™ Intelligence	

1.2. Table 3 List of USB pin description

Pin No.	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
Signal A	GND	TX1+	TX1-	VBUS	CC1	D+	D-	SBU1	VBUS	RX2-	RX2+	GND
Signal B	GND	RX1+	RX1-	VBUS	SBU2	D1	D+	CC2	VBUS	TX2-	TX2+	GND
Pin No	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1

1.3. Table 4 List of IX Connector pin (Synchronization signals) description

Pin No.	Signal	Pin No.	Signal
1	TRIGGER_OUT/SYNC_OUT_P +3.3V	6	TRIG_IN_N -opto-coupled
2	SYNC_OUT_N	7	No use
3	SYNC_IN_P -opto-coupled	8	No use
4	SYNC_IN_N -opto-coupled	9	No use
5	TRIG_IN_P -opto-coupled	10	No use

When SilkyEvCam USB is used as master, synchronization signal is provided: pins 1 & 2. This signal can be either:

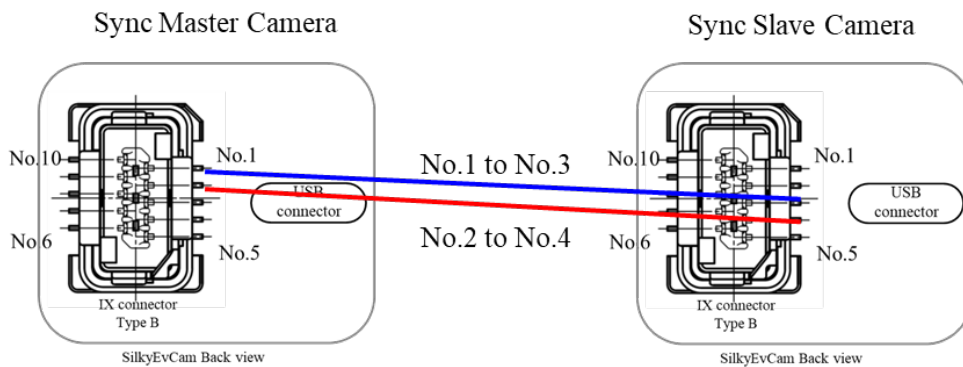
- TRIGGER_OUT: periodic signal with programmable period & duty cycle
- EXT_SYNC_CLK_OUT: 1MHz Sync clock

When camera is slave it can receives

- A 1MHz clock: EXT_SYNC_CLK_IN on pins 3 & 4
- Or a trigger: MAIN_TRIGGER_IN on pins 5 & 6

Detailed Information on PROPHESEE website : Trigger IN/Out

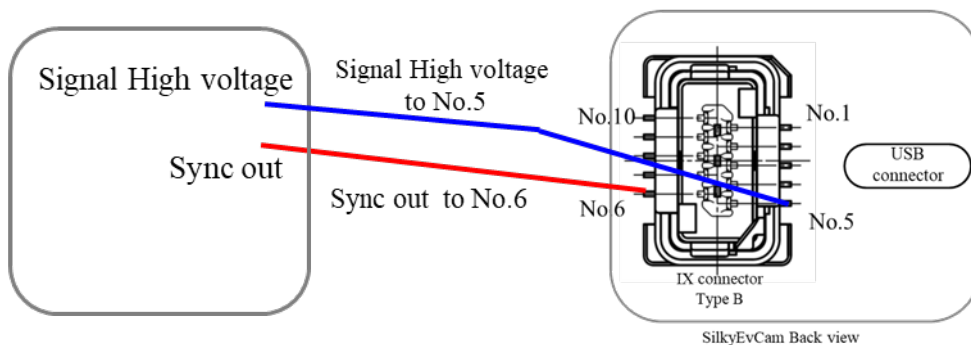
Two Cameras connected on the same PC



FB Master Camera / EB Slave Camera

Flame based camera

SilkyEvCam standalone



1.4. Requirements

The following requirements have to be met to use SilkyEvCam on a computer.

Software requirements:

- Please refer to the latest software manual.

Installation requirements:

- Administrator rights (sudo account)
- Internet access (to install dependencies)

Physical Interfaces

SilkyEvCam USB has two interfaces:

- USB 3.0 connector: for data and power supply
- External pins to connect an external trigger source. See Evaluation Kit Trigger Interface manual.

1.5. Table 4 List of LED Function

Power ON	Lights ON to OFF after 3seconds
Operating (Streaming)	Lights OFF
Transfer Error	Flashing

The LED Light signal cannot be confirmed in normal use.
It exists for debugging.

1.6. Reset SW Function

RESET SW is connected to the CX3 RESET # pin.

The RESET SW cannot be operated in normal use.

It exists for debugging.

1.7. Notes on writing to firmware

Please change the firmware according to the guidelines provided by us. Writing the firmware the wrong way may not work.

2 Operating Temperature

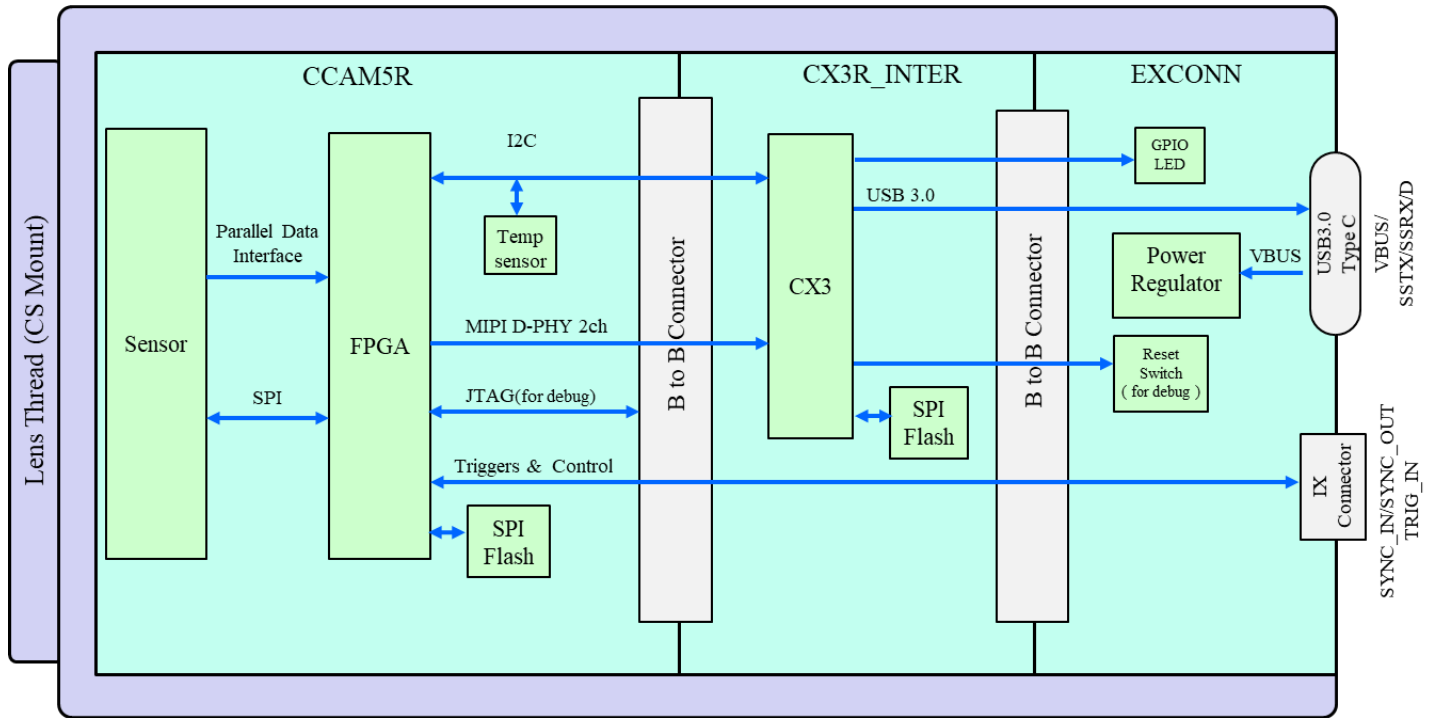
Table 3 Temperature Specifications

Item	Conditions	Specification	Unit
Operating temperature	Image should be output.	0~+50°C	°C
Storage temperature		-30~+80°C	°C
Operating humidity range		+80%RH or under	%RH

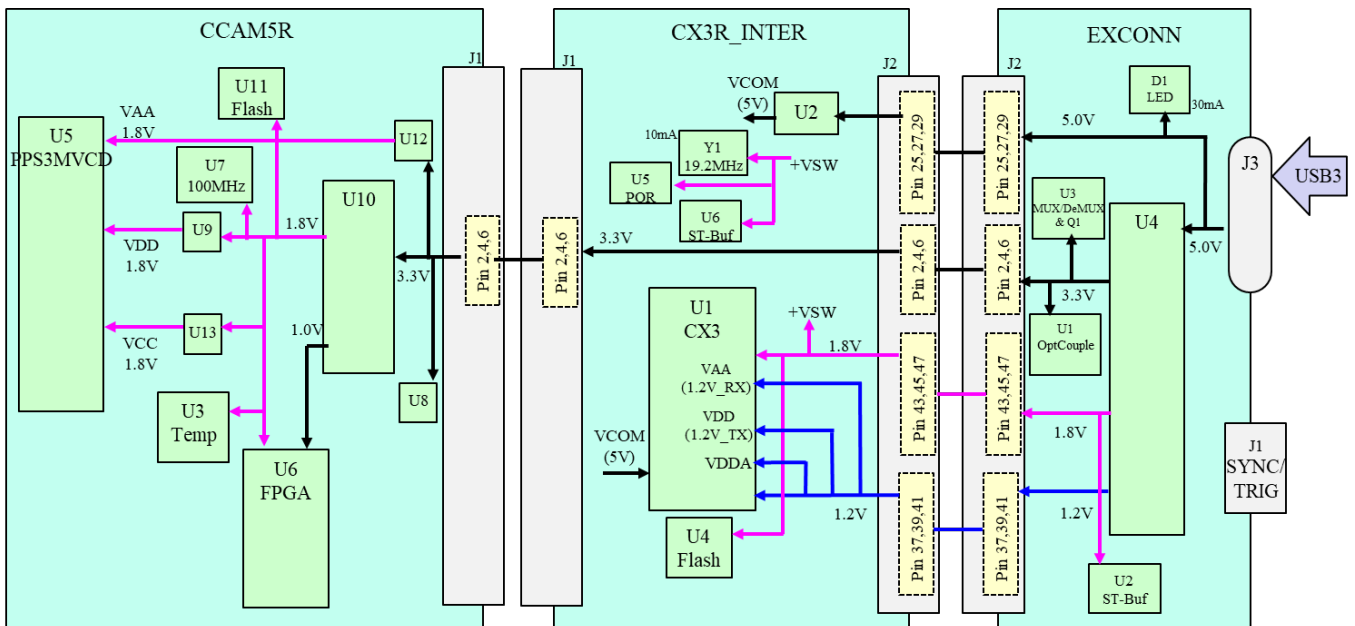
3 Operating Condition

Input Voltage	5V±0.25V (From USB Connector)
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4 Block Diagram

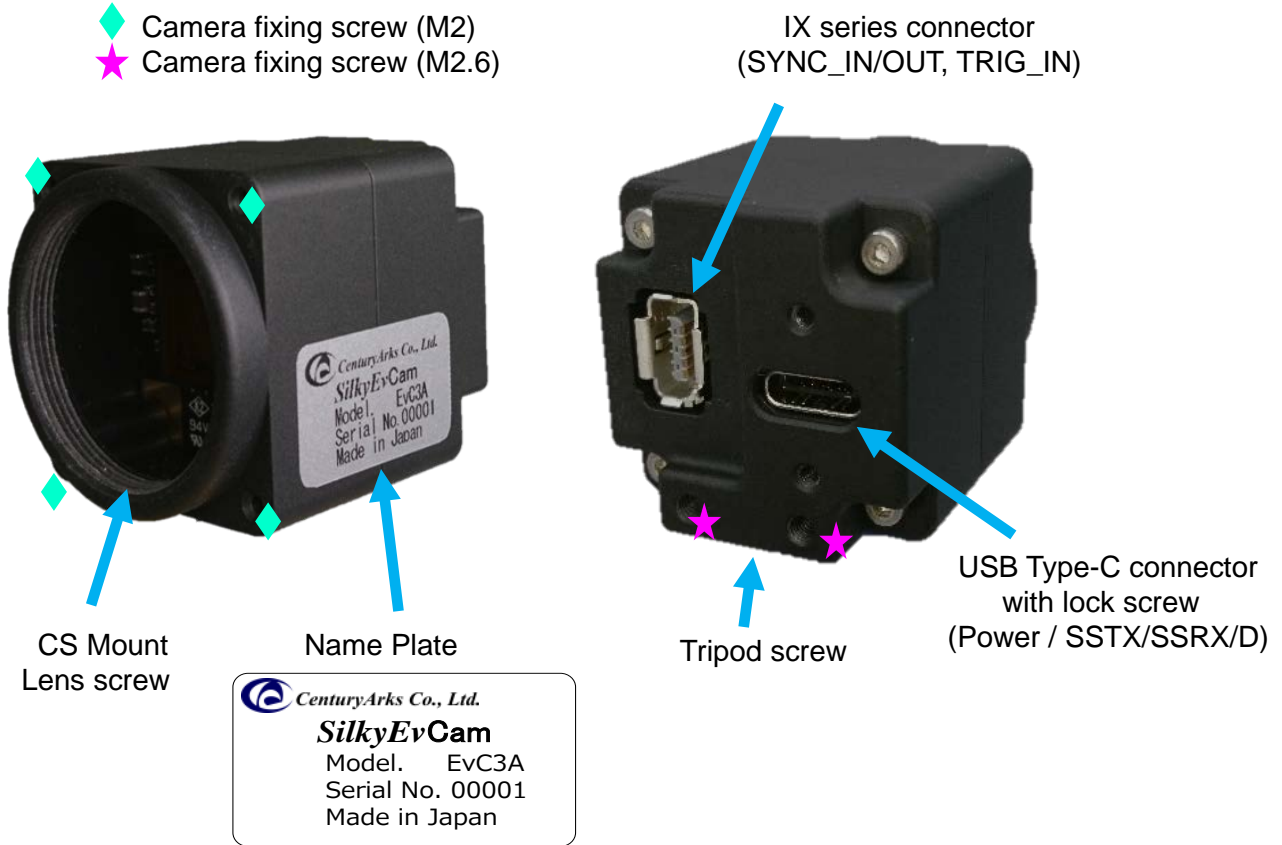


5 Power Structure

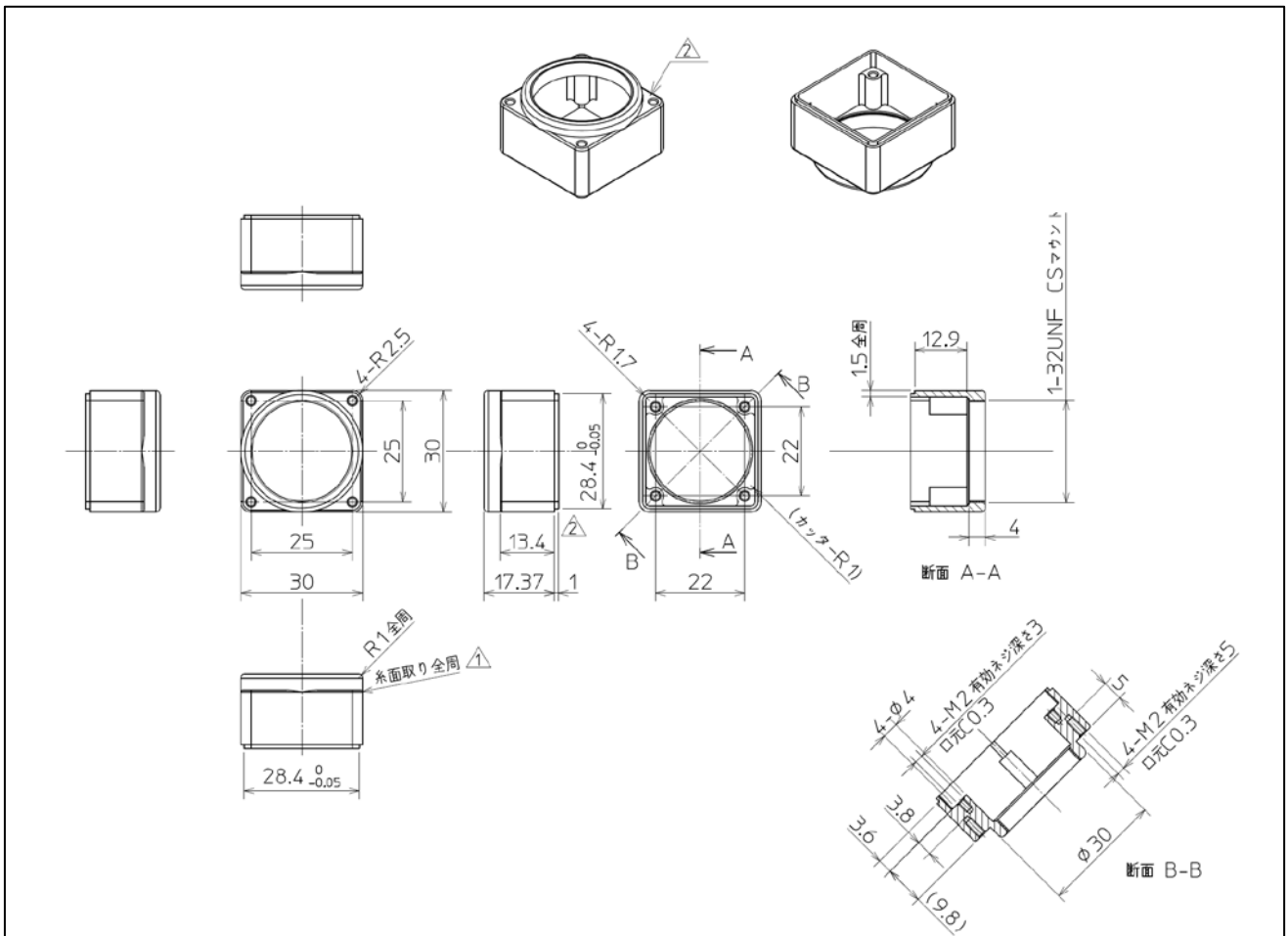


6 Dimension

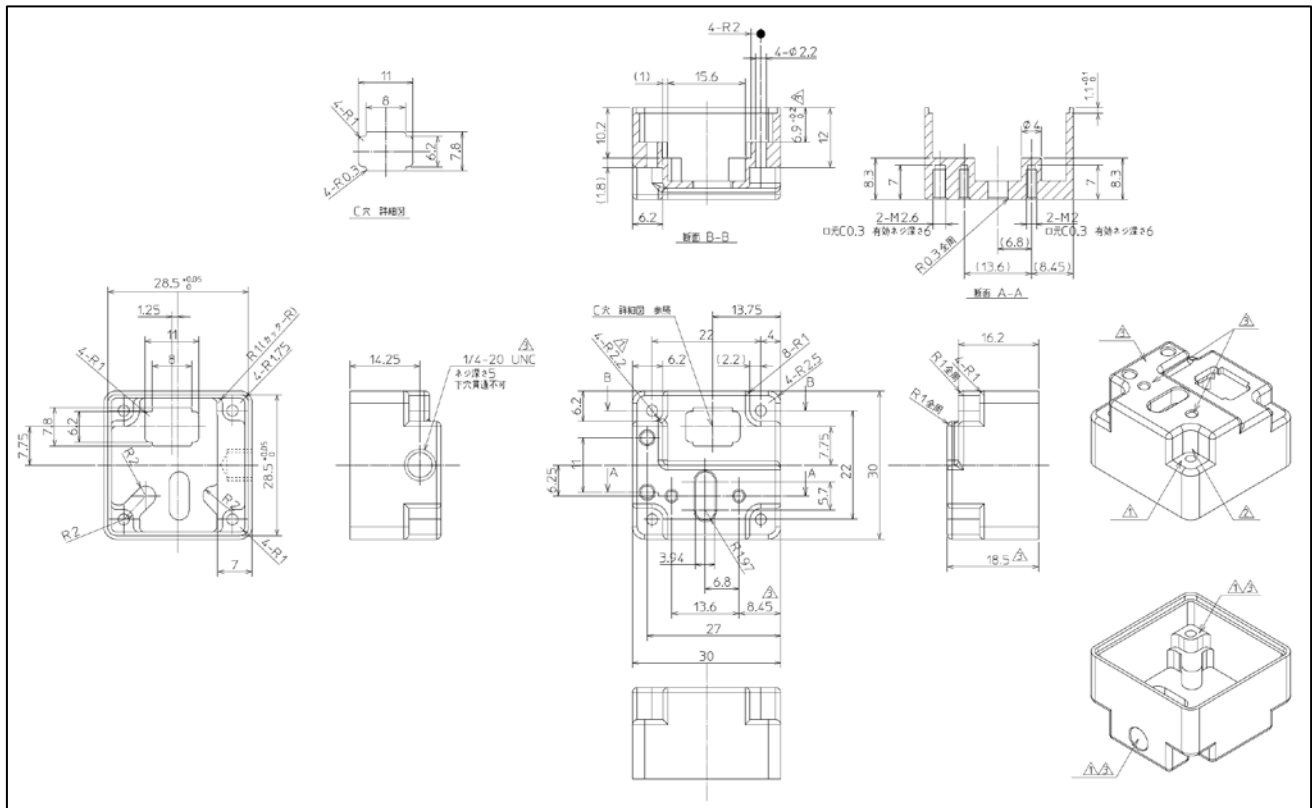
-  Camera fixing screw (M2)
-  Camera fixing screw (M2.6)



Front case



Back case



7 Notes on Handling and Assembly

7.1. Notes on Handling

When using this product, ensure safe design by heeding the following precautions.

1. Prevention of Electrostatic Discharge (ESD)

Event based sensors and other ICs can easily be damaged by static discharge. When handling these modules, take the following measures to prevent static discharge.

- (1) Either use non-chargeable gloves, clothes or material. Also use conductive shoes.
- (2) Use a wrist strap when handling directly.
- (3) Install grounded conductive mats on the floor and working table to prevent the generation of static electricity.
- (4) Ionized air is recommended for discharge when handling Event based sensors.
- (5) For the shipment of camera, use bag treated for the prevention of static charges.

2. Notes on storage and operating environments

Do not store or use the lens modules in harsh environments with high temperatures, high humidity levels, and high concentrations of dust or in environments where condensation may form from moisture or dampness.

8 Packing specification

[SilkyEvCam(EvC3A)]

- SilkyEvCam (1)
- USB3 Cable (Type-C to Type-A , 1.2m) (1)



Size :193(W)x139(D)x62(H)mm

[SilkyEvCam Turn Key Pack(EvC3A-TK1)]

- SilkyEvCam (1)
- USB3 Cable (Type-C to Type-A , 1.2m) (1)
- Standard Lens (1)
- Mini tri-pod (1)
- Mobile case (1)

