# SG3S-ISX031C-F3A-Hxxx

## 3MP FPDLink CAMERA

### ✏️ GENERAL DESCRIPTION

The camera is equipped with SONY CMOS image sensor ISX031 and TI FPDLink III. It has an automotive-grade sensor with a well-tuned Image Signal Processor (ISP) that produces exceptional image quality, which comes with an IP67-rated enclosure – is supplied with an AA lens that is focused and glued in our factory.

### ⊞ KEY PARAMETERS

| | |
|---|---|
| Sensor | SONY 2.95MP ISX031 RGGB |
| ISP | Built-in |
| Image Size | 1/2.42 inch CMOS |
| Output Pixels | 1920H*1536V |
| Pixel Size | 3um*3um |
| Frame Rate | 1920*1536@30fps |
| HDR Support | Yes |
| LFM | Yes |
| Output data | YUV422@8bit |
| Serializer | TI  DS90UB953 |
| Camera Interface | FPDLink III |
| Power Supply | 9~16V POC |
| Current | <200mA@12VDC |
| Connector | Amphenol（Z Type Fakra) |
| Operating temp. range | -40~+85℃ |
| Dimensions | W: 25mm, L:25mm, H:18.6mm |
| Weight | <50g |

### 👁 Features

- Output format: Uncompressed YUV422 format
- S-mount IP67 compliant lens focused and glued at our factory
- External trigger support
- Multi−Camera synchronization Support
- Support different focal length lens
- FCC , CE and RoHS

### 📦 Application

- Automotive
- ADAS + Viewing Fusion
- High Dynamic Range Imaging
- Autonomous Driving
- Robots

# ⬡ HARDWARE SETTING

| Serializer | |
|---|---|
| Model | DS90UB953 |
| I2C Address | 0x30(8bit address) |

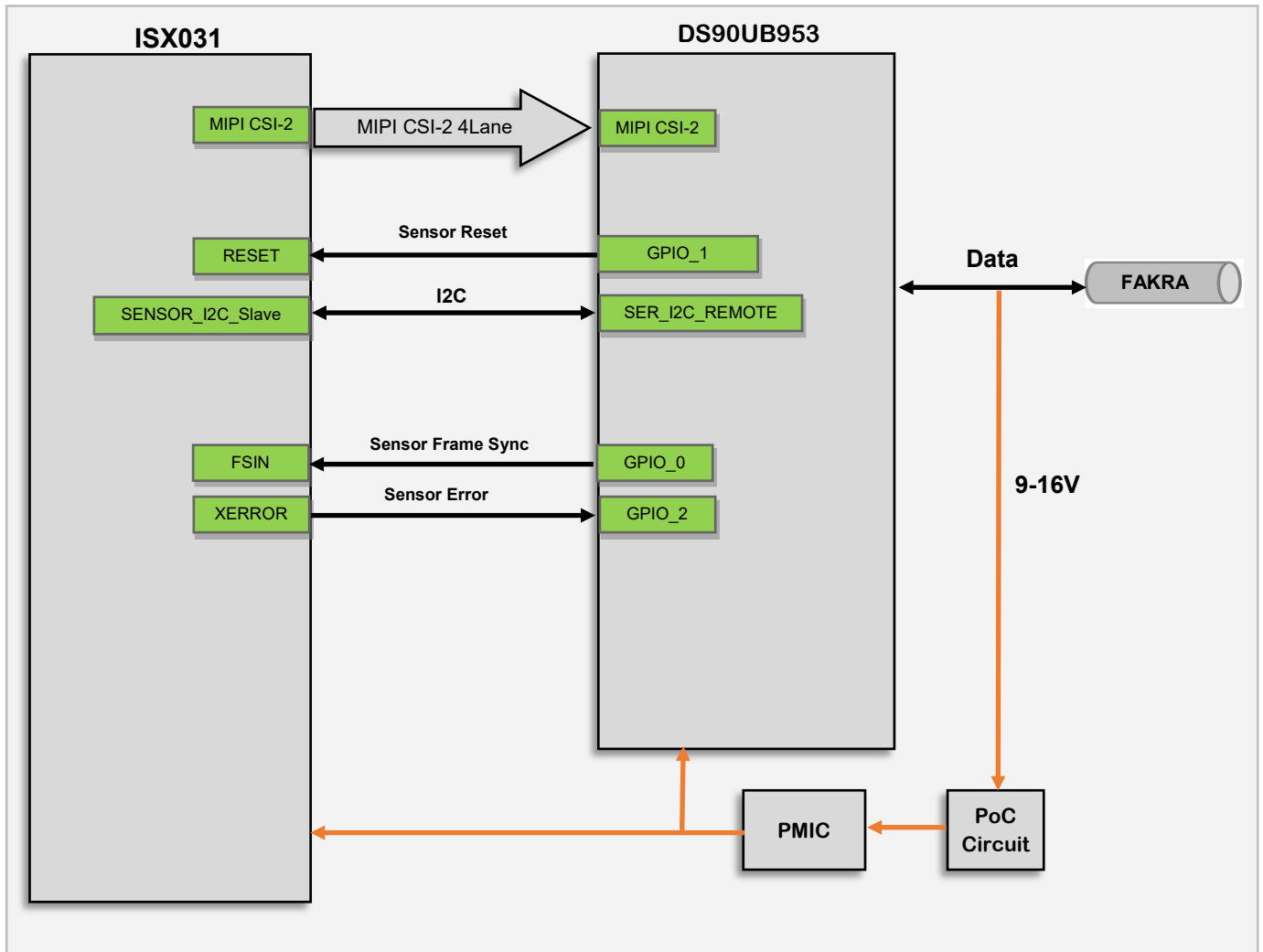| Sensor | |
|---|---|
| Model | ISX031 |
| I2C Address | 0x34(8bit address) |
| Frame Sync | Controlled by DS90UB953 GPIO_0 |
| Reset | Controlled by DS90UB953 GPIO_1 |
| XERROR | DS90UB953 GPIO_2 |

Interface Circuit Diagram

# 🖳 BLOCK DIAGRAM

```
           ISX031                                    DS90UB953

        ┌──────────┐                              ┌──────────┐
        │ MIPI CSI-2 │  ═══ MIPI CSI-2 4Lane ══▷  │ MIPI CSI-2 │
        └──────────┘                              └──────────┘

                            Sensor Reset
        ┌──────────┐  ◀─────────────────────────  ┌──────────┐          Data
        │  RESET   │                               │  GPIO_1  │                      ┌─────────┐
        └──────────┘          I2C                  └──────────┘         ◀──────────▶ │  FAKRA  │
    ┌──────────────────┐ ◀──────────────────────▶ ┌────────────────┐               └─────────┘
    │ SENSOR_I2C_Slave │                           │ SER_I2C_REMOTE │
    └──────────────────┘                           └────────────────┘

                         Sensor Frame Sync
        ┌──────────┐  ◀─────────────────────────  ┌──────────┐
        │   FSIN   │                               │  GPIO_0  │                      9-16V
        └──────────┘         Sensor Error          └──────────┘
        ┌──────────┐  ─────────────────────────▶  ┌──────────┐
        │  XERROR  │                               │  GPIO_2  │
        └──────────┘                               └──────────┘

                                          ┌────────┐        ┌─────────┐
                                          │  PMIC  │ ◀───── │   PoC   │
                                          └────────┘        │ Circuit │
                                                            └─────────┘
```

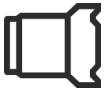**Block Diagram**

※ The camera module has a built-in ISP that outputs YUV data. The backend does not need to configure an image sensor, but only needs to configure SerDes;

※ For SerDes setting code, please contact Sales@sensing-wolrd.com;
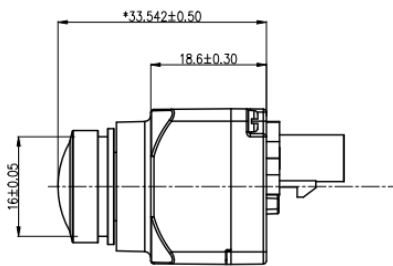
## MODEL AND LENS

| Model | HFOV | VFOV | F.No | EFL | Max Optical Distortion | Water-proof | Lens Mount |
|---|---|---|---|---|---|---|---|
| SG3S-ISX031C-F3A-H30X | 30° | 24° | 1.6 | 10.96mm | -2.5% | IP67 | M12 |
| SG3S-ISX031C-F3A-H60FA | 60° | 46° | 1.6 | 5.8mm | -21% | IP67 | AA |
| SG3S-ISX031C-F3A-H100F1A | 100° | 78° | 1.6 | 3.55mm | -58% | IP67 | AA |
| SG3S-ISX031C-F3A-H120UA | 118° | 92° | 2 | 3mm | -92% | IP67 | AA |
| SG3S-ISX031C-F3A-H190XA | 196° | 154° | 2.0 | 1.51mm | -155% | IP67 | AA |

## DIMENSIONS
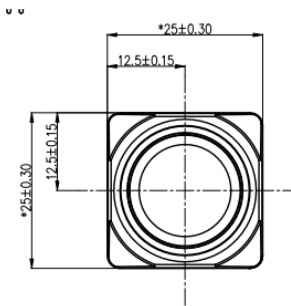


Front View          Side View          Rear View
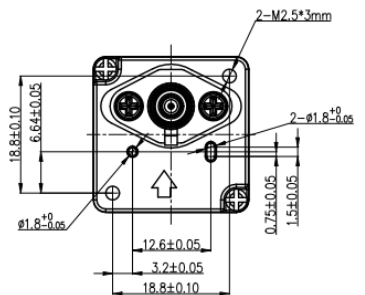
Note:

△ The height of this module varies when matching different lenses. Please refer to 3D digital analog size for details.

This icon indicates the imaging direction is positive.

Dimension

# PLATFORMS SUPPORT

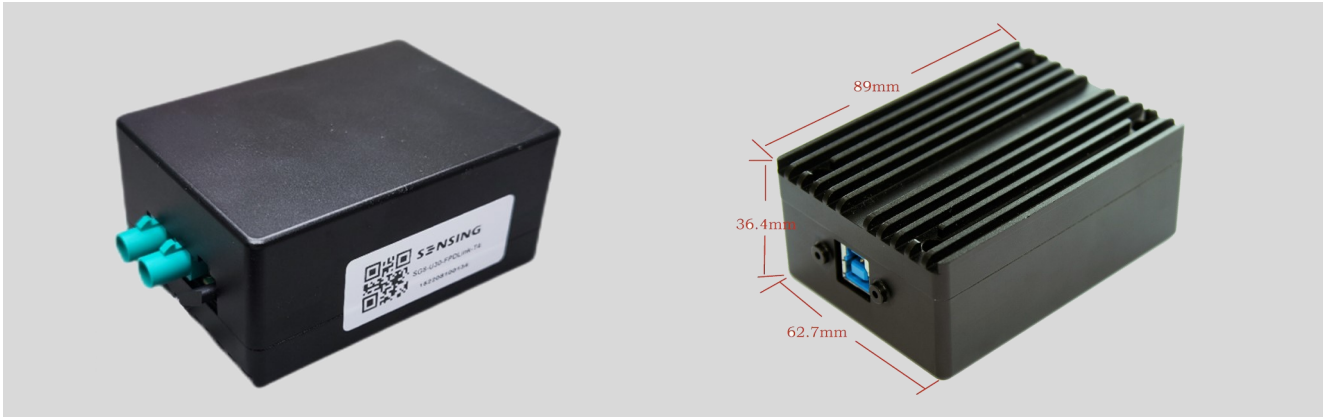| Platforms | Product Link |
| --- | --- |
| NVIDIA Jetson platforms | Not supported |
| SerDes Camera to USB Converter | Compatible with UVC protocol<br><br>https://www.sensing-world.com/USB_Converter/ |
| CoaxCapture II GMSL Capture Card | Not supported |

※ For development support, please contact Sales@sensing-wolrd.com；

# DEVELOPMENT KIT

## ◇ **SerDes Camera to USB Converter**



- SG3S-ISX031C-F3A can connect to **SG8-U30-FPDLink** as a USB 3.0 camera **.**

- USB Camera Part Number: **SG3-ISX031C-FPDLink-U30-Hxxx** (include 1xSG8-U30-FPDLink, and 1xSG3S-ISX031C-F3A)

### ◇ **KEY FEATURES**

→ USB 3.0 Super Speed support

→ UVC compliance

→ Provide customization services

→ Power Supply by USB interface

→ Weight: <300g

→ Single Coax Cable transmit up to 20 meters PoC (Power over Cable)

→ Support Windows only
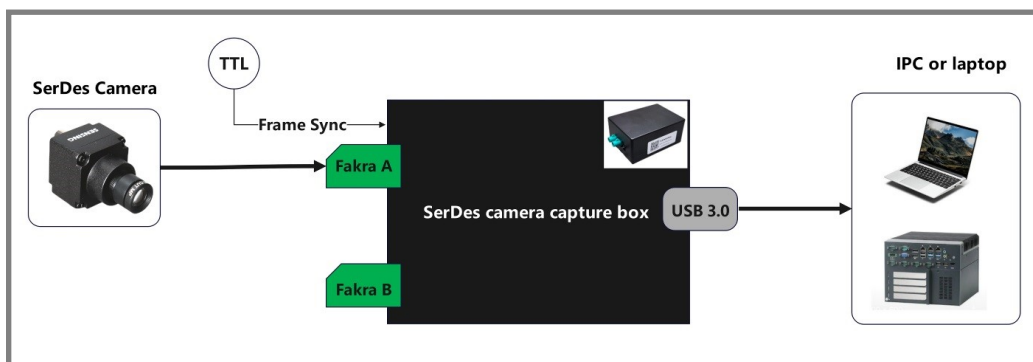


※ Support connected one camera only；

## ACCESSORIES

◇ **Coaxial Cable**

| Product Name | Order PN# | Specification |
|---|---|---|
| Mini-fakra Coaxial Cable 4-in-1(Rosenberg) | R4JC-JC-ZZZZ-0500L | Mini-fakra, 4 in 1, 0.5m, Female to Female |
| Mini-fakra Coaxial Cable 4-in-1（TE） | T4JC-PC-ZZZZ-0500A | Mini-fakra, 4 in 1, 0.5m, Male to Female |
| Mini-fakra Coaxial Cable 4-in-1(Rosenberg) | R4JC-PC-ZZZZ-0500L | Mini-fakra, 4 in 1, 0.5m, Male to Female |
| Mini-fakra Coaxial Cable 4-in-1（TE） | T4JC-JC-ZZZZ-0500A | Mini-fakra, 4 in 1, 0.5m, Female to Female |
| Camera coaxial Cable | SG-JSZPSZ2000L | 2M, Male to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZ2000L | 2M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZPSZ3000L | 3M, Male to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZ3000L | 3M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZPSZ5000L | 5M, Male to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZ5000L | 5M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZ7000L | 7M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZ8000L | 8M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZPSZL100L | 10M, Male to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZL100L | 10M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZL120L | 12M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZL160L | 16M, Female to Female, IP67 |
| Camera coaxial Cable | SG-JSZJSZL200L | 20M, Female to Female, IP67 |
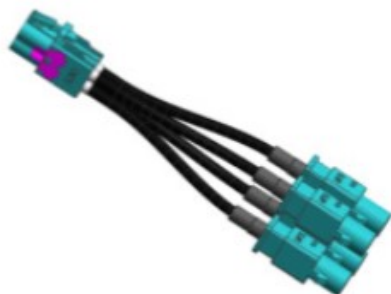
## Revision History

| Version | Description | Release date |
|---------|-------------|--------------|
| Rev1 | First Release | Mar.2024 |

# Contact Us

## SZ Sensing TECH CO.,LTD

**HQ Address:** 8/F,block B, building 1,wisdom home,No.76,Baohe Avenue,Baolong street, Longgang District, Shenzhen

**Phone:** +86-755-28990915

**Email:** Sales@sensing-world.com

**Company Website:** www.sensing-world.com

**Online Message:** https://www.sensing-world.com/lxwm

**WECHAT**          **SKYPE**          **WhatsApp**