SONY IMX327LQR/LQR1 Security Camera Image Sensor Instruction Manual

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SONY IMX327LQR/LQR1 Security Camera Image Sensor

Product Information

The IMX327LQR/LQR1 is a CMOS solid-state image sensor with a diagonal size of 6.46 mm (Type 1/2.8). It is specifically designed for color cameras and features a square-pixel format. The sensor offers various modes including all-pixel scan mode, 720p-HD readout mode, window cropping mode, and vertical/horizontal direction-normal/inverted readout mode. It also supports high dynamic range (HDR) function and multiple exposure HDR. The IMX327LQR/LQR1 is equipped with a variable-speed shutter function, a 10-bit/12-bit A/D converter, and CDS/PGA function. It has a sensitivity of 2000 mV or more per 1 m2 and delivers high-quality images in both visible-light and near-infrared light regions.

Product Usage Instructions

1. To use the IMX327LQR/LQR1 image sensor, connect it to a compatible camera system using the recommended interface (LVDS or CSI-2).
2. Ensure that the sensor is properly mounted in the camera system, following the instructions provided by the camera manufacturer.
3. Before capturing images, select the desired mode based on your requirements. You can choose from all-pixel scan mode, 720p-HD readout mode, window cropping mode, or vertical/horizontal direction-normal/inverted readout mode.
4. If you want to enhance the dynamic range of your images, enable the HDR function. The IMX327LQR/LQR1 supports both multiple exposure HDR and digital overlap HDR.
5. If necessary, adjust the shutter speed using the variable-speed shutter function. The resolution of adjustment is 1H unit.
6. You can choose between a 10-bit and 12-bit A/D converter for the conversion of analog signals to digital values.
7. If you need to apply correction to the image, utilize the CDS/PGA function provided by the sensor.
8. Refer to the product manual for detailed specifications and guidelines on recommended recording pixels, maximum frame rate, and other technical parameters.
9. Make sure to visit the official Sony website for any updates or changes to the product specifications.

Note:
The IMX327LQR/LQR1 image sensor is suitable for security camera applications. For more information on Sony's image sensors for security cameras, visit **https://www.sony.net/cis-security/**.

Diagonal 6.46 mm (Type 1/2.8) CMOS Solid-state Image Sensor with Square Pixel for Color Cameras

Description

The IMX327LQR/LQR1 are diagonal 6.46 mm (Type 1/2.8) CMOS active pixel type solid-state image sensors with a square pixel array and 2.13 M effective pixels. These chips operate with analog 2.9 V, digital 1.2 V, and interface 1.8 V triple power supply, and have low power consumption. High sensitivity, low dark current and no smear are achieved through the adoption of R, G and B primary color mosaic filters. These chips feature an electronic shutter with variable charge-integration time. (Applications: Surveillance cameras, FA cameras, Industrial cameras)

Features

- CMOS active pixel type dots
- Built-in timing adjustment circuit, H/V driver and serial communication circuit
- Input frequency: 74.25 MHz / 37.125 MHz
- Number of recommended recording pixels: 1920 (H) × 1080 (V) approx. 2.07 M pixel
- **Readout mode**
  - All-pixel scan mode
  - 720p-HD readout mode
  - Window cropping mode
  - Vertical / Horizontal direction-normal / inverted readout mode
- **Readout rate**
  - Maximum frame rate in Full HD 1080p mode: 60 frame / s
- **High dynamic range (HDR) function**
  - Multiple exposure HDR
  - Digital overlap HDR
- Variable-speed shutter function (resolution 1H units)
- 10-bit / 12-bit A/D converter
- **CDS / PGA function**
  - 0 dB to 29.4 dB: Analog Gain 29.4 dB (step pitch 0.3 dB)
  - 29.7 dB to 71.4 dB: Analog Gain 29.4 dB + Digital Gain 0.3 to 42 dB (step pitch 0.3 dB)
- **Supports I/O switching**
  - Low voltage LVDS (150 m Vp-p) serial (2 ch / 4 ch switching) DDR output
  - CSI-2 serial data output (2 Lane / 4 Lane, RAW10 / RAW12 output)
- Recommended exit pupil distance: –30 mm to –∞
- Anti-reflective coating glass on both sides (IMX327LQR1), Non-anti-reflective coating glass (IMX327LQR)

Device Structure

- CMOS image sensor
- Image sizeType 1/2.8

- Total number of pixels1945 (H) × 1109 (V) approx. 2.16 M pixels
- Number of effective pixels1945 (H) × 1097 (V) approx. 2.13 M pixels
- Number of active pixels1937 (H) × 1097 (V) approx. 2.12 M pixels
- Number of recommended recording pixels1920 (H) × 1080 (V) approx. 2.07 M pixels
- Unit cell size2.9 µm (H) × 2.9 µm (V)
- **Optical black**
  - Horizontal (H) direction: Front 0 pixel, rear 0 pixel
  - Vertical (V) direction: Front 10 pixels, rear 0 pixel
- Dummy
  - Horizontal (H) direction: Front 0 pixel, rear 3 pixels
  - Vertical (V) direction: Front 0 pixel, rear 0 pixel
- Package110 pin LGA

Image Sensor Characteristics

Item		Value	Remarks
Sensitivity (F5.6)	Typ.	10741 Digit (IMX327LQR) 11388 Digit (IMX327LQR1)	1/30s accumulation 12 bit converted value
Saturation signal	Min.	3855 Digit	12 bit converted value

Basic Drive Mode

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
Full HD 1080p	1920 (H) × 1080 (V) approx. 2.07M pixels	60	LVDS CSI-2	10/12
HD 720p	1280 (H) × 720 (V) approx. 0.92M pixels	60	LVDS CSI-2	10/12

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STARVIS and **STARVIS** are registered trademarks or trademarks of Sony Group Corporation or its affiliates. The STARVIS is back-illuminated pixel technology used in CMOS image sensors for security camera applications. It features a sensitivity of 2000 mV or more per 1 µm2 (color product, when imaging with a 706 cd/m2 light source, F5.6 in 1 s accumulation equivalent), and realizes high picture quality in the visible-light and near infrared light regions.

Image Sensors for Security Cameras:
https://www.sony.net/cis-security/.

Documents / Resources

	SONY IMX327LQR/LQR1 Security Camera Image Sensor [pdf] Instruction Manual IMX327LQR LQR1 Security Camera Image Sensor, IMX327LQR, IMX327LQR1, IMX327LQR Security Camera Image Sensor, IMX327LQR1 Security Camera Image Sensor, Security Camera Image Sensor, Security Camera Sensor, Image Sensor, Sensor