Technical Details

DMK 36CX297-I67
Technical Reference Manual

THE IMAGINGSOURCE
TECHNOLOGY BASED ON STANDARDS

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1 Quick Facts

General	
Dynamic Range	10 bit
Resolution	720x540
Frame Rate at Full Resolution	120
Pixel Formats	10-Bit Monochrome

Optical Interface	
Sensor Type	Sony IMX297LQR-C
Shutter Type	Global
Sensor Format	1/2.9 inch
Pixel Size	6.9 µm

Electrical Interface	
Interface	FPD-Link III via FAKRA connector
Supply voltage	10-27V
Current consumption	approx 110 mA @ 18 VDC

Mechanical Data	
Dimensions	H: 36 mm, W: 36 mm, L: 60.3 mm
Mass	80 g
Protection Class	IP6K6, IP6K7 (ISO 20653) *

*) Protection only while The Imaging Source IP67 FAKRA cable is connected to the camera.

Adjustments	
Shutter	1 µs to 1 s
Gain	0 dB to 48 dB

Environmental	
Temperature (operating)	-5 °C to 45 °C
Temperature (storage)	-20 °C to 60 °C
Humidity (operating)	20 % to 80 % (non-condensing)
Humidity (storage)	20 % to 95 % (non-condensing)

2 Electrical Characteristics

2.1 Absolute Maximum Ratings

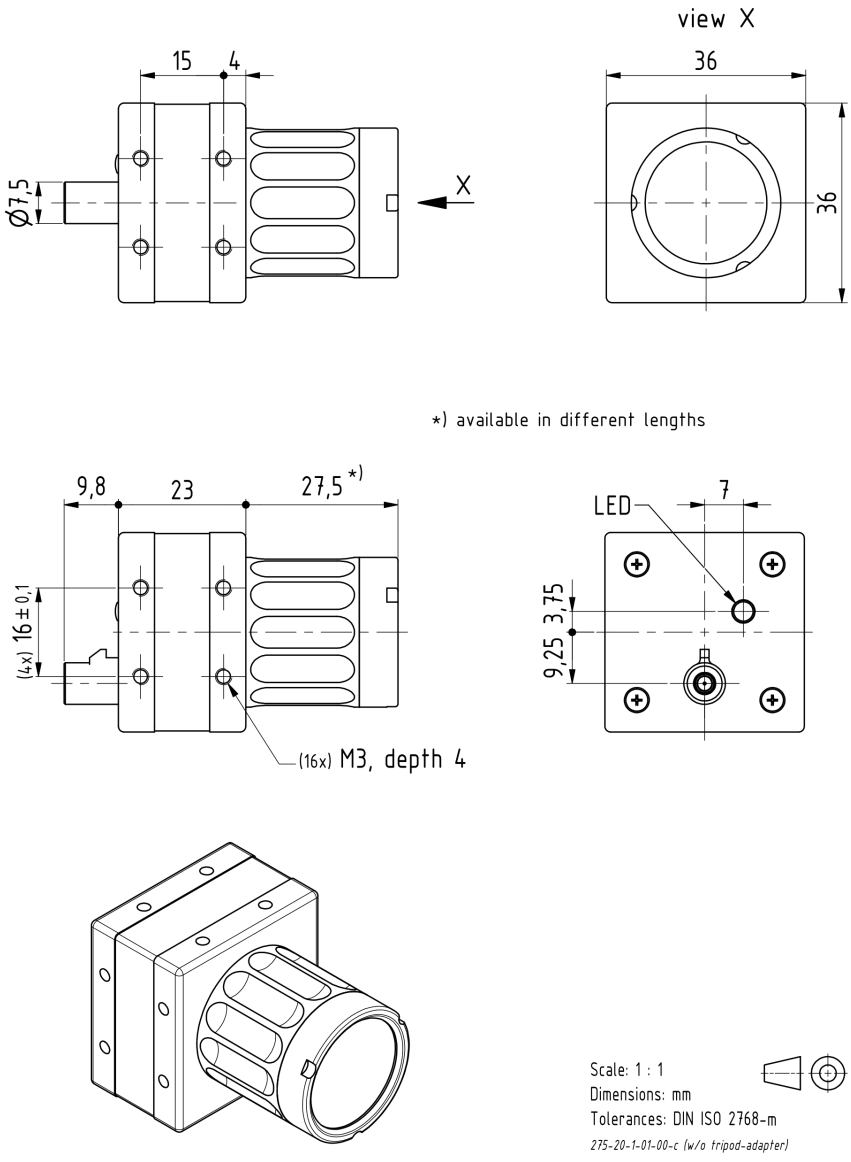
Item	Symbol	Pins	Min	Max	Unit
Supply voltage	V_COAX		-0.3	+27.0	V

2.2 Recommended Operating Conditions

Item	Symbol	Pins	Min	Typ	Max	Unit
Supply voltage	V_COAX		9.0	18.0	24.0	V

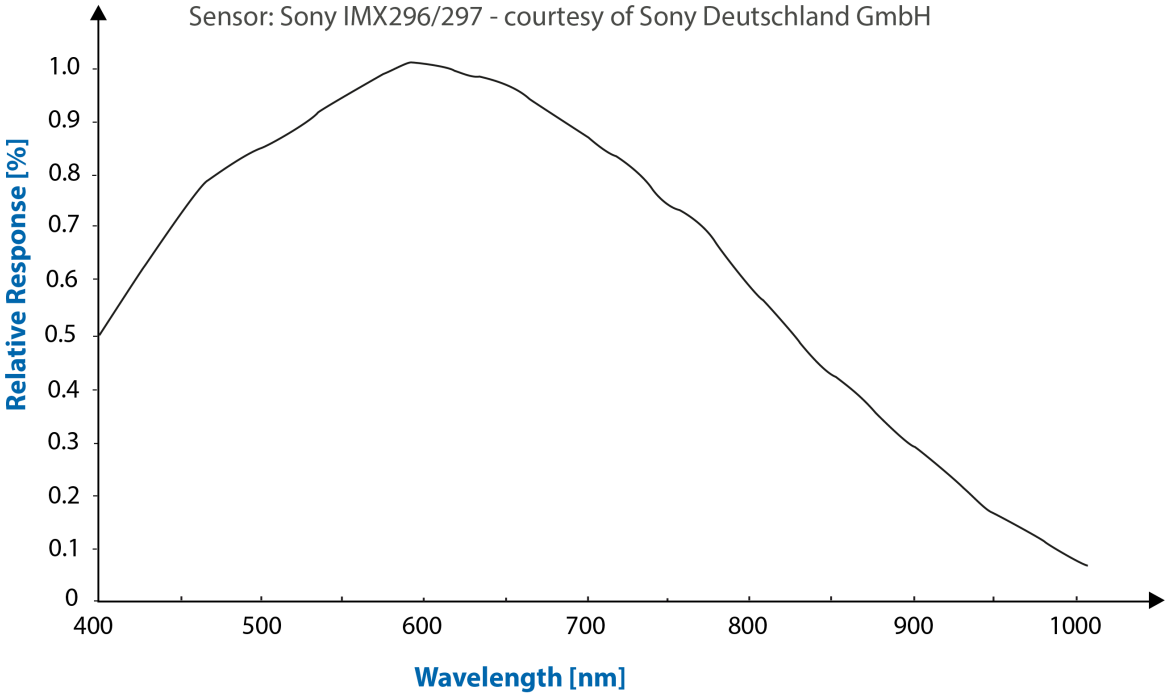
3 Dimensional Diagrams

3.1 DMK 36CX297-I67 Board Camera



4 Spectral Characteristics

4.1 Spectral Sensitivity - IMX297LQR-C



5 FPD-Link Serializer I/O Signals

The serializer chip DS90UB953-Q1 (Texas Instruments) has 4 GPIO pins. Their purpose is described in the following table:

Pin	Name	Dir	Description
17 (GPIO0)	STROBE	I	Strobe signal from CMOS sensor
18 (GPIO1)	NC	-	Not connected
27 (GPOI2)	TRIGGER	O	Trigger signal to the CMOS sensor
28 (GPOI3)	RESERVED1_GPIO3	I/O	Reserved signal

The serializer's CLK_OUT (19) pin is connected to the sensor's clock input. This means that the sensor's clock frequency is controlled through serializer PLL registers.

6 I2C I/O Expander Configuration

Various I/O functionalities of the camera are controlled through a I2C I/O Expander.

The TCA6408A part has the 7-bit I2C-address 0x20. The table below depicts which signals can be controlled through this expander:

I/O Pin	Name	Dir	Description
P0	CAM_PWR	O	Enable CMOS sensor power supply 0: Sensor power disabled 1: Sensor power enabled
P1	RESET	O	CMOS sensor reset signal 0: Sensor is in reset state 1: Sensor is in operational state
P2	GPOUT_LEVEL	O	If GPOUT_SELECT = 0: --->0: LED1 off --->1: LED1 on
P4	GPOUT_SELECT	O	0: Control LED via GPOUT_LEVEL 1: Reserved
P5	RESERVED_5	O	Reserved
P6	RESERVED_6	O	Reserved
P7	RESERVED_7	O	Reserved

7 I2C Devices

There are multiple I2C devices on the DMK 36CX297-I67 sensor board. The following table describes the parts and their I2C addresses:

Address (7-bit)	Device	Description
0x1A	IMX297LQR-C	Image Sensor
0x20	TCA6408A	I/O Expander
0x40 (*)	LCMXO3L-1300E	Trigger Control FPGA (configuration)
0x42 (*)	LCMXO3L-1300E	Trigger Control FPGA (control)
0x50	AT24C256C	EEPROM
0x57	AT24C02C	EEPROM

(*) Only present on sensor board revision 2.00 or later.

8 Status LEDs

There is one status LED on the serializer board:

Name	Color	Description
LED1	Green	Controlled through GPOUT_LEVEL on the I/O expander

9 Trigger Control FPGA

In order to handle complex trigger/strobe functions of the image sensor, a FPGA is present on sensor board revision 2.00 and above.

A reference driver implementation is available upon request.

DMK 36CX297-I67

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All weights and dimensions are approximate. Unless otherwise specified, the lenses shown in the context of cameras are not shipped with these cameras.

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