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Datasheet

oToBrite Electronics, Inc

oToCAM250

Revision	Description	Release Date
1.0	First Release	Oct., 24, 2019
1.1	Spec Update	Feb., 5, 2020

1. General Description

The oToCAM250 is an automotive Driver Monitoring Camera (DMC).   It uses high sensitive 1/4"
Mono CMOS sensor. It also comes with two IR LED @850nm.   oToCAM250 is a perfect selection for in
cabin automotive application.

2. Product specification

| No.	Item	Specification
1	Image sensor	CMOS (AR0144AT)
2	Number of pixels	Mega-pixel (1280x720)(default setting)
3	View angle(H/V)	68 degree
4	Resolution(Center/Corner)	500 TV lines
5	Color filter array	Mono
6	Output Interface	FPD-Link III with POC
7	Output Formats	12-bit raw data (Fakra connector on pig-tail)
8	S/N ratio	38dB
9	Lens structure	1G3P with IR850 filter
10	Lens F No.	F2.0
11	Power source (POC)/Typical	DC 5.5V ~ 12V/6V
12	Startup time of power in	Within 200ms
13	Frame rate	30 fps (default setting)
14	Exposure Control	Auto Exposure Control (internal AE)
15	Serializer	TI DS90UB913A-Q1
16	Camera Current Consumption	Below 80mA @12V
17	LED	Two IR (850nm) LED
18	LED Power	Max. 3.7watts @12V
19	Operating Temperature	-40°C ~ +85°C
20	Storage temperature Range	-40°C ~ +95°C
21	Waterproof	N/A
22	Dimension(mm)	43*31*18 (w/o Bracket)
23	Weight	44g

3. Outline Drawing
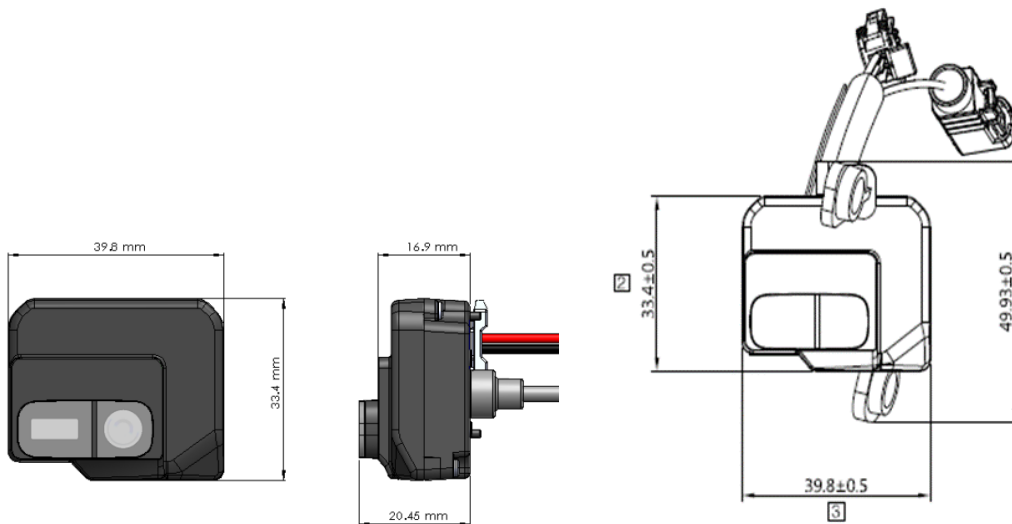
Figure 1. oToCAM250 Diagram (the bracket is optional and different for different car models)

4. Interface, Cables and Connectors (Male and Female)
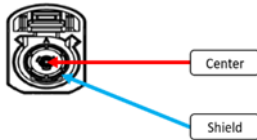## 4.1 Connectors of pigtail cable
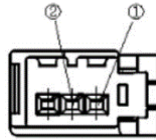

        Figure 2A. Deren 6A103-026R   Figure 2B. Hulane A03FW

4.2 Coax cable (POC) with Fakra connector
Cable length: 230mm (+20/-20_mm)
Connector type: Deren 6A103-026R   (Connector type of harness: Deren 6A104-005R)
Pin definition:

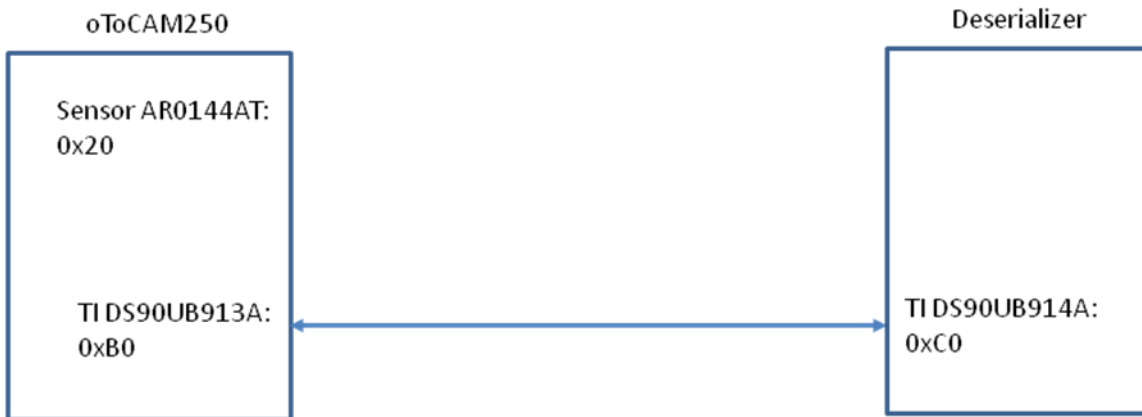| Pin No.	Signal Name	Operation Voltage and Current
Center	DOUT	Min. 0.320V, Max. 0.412V
	PWR	Typ. 50mA @6V
Shield	Shield GND	

4.3 LED power cable
Cable length: 200mm (+20/-20_mm)
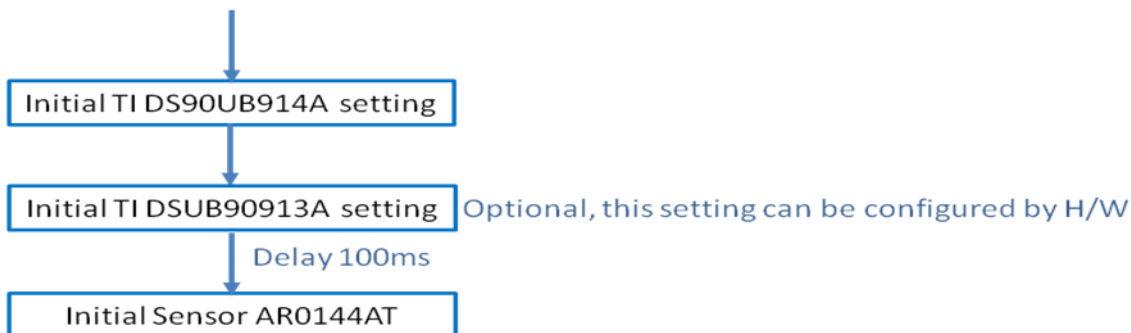Connector type: Hulane A03FW   (Connector type of harness: Hulane A03MW)
Pin definition:

Pin No.	Signal Name	Operation Voltage and Current
1	LED PWR	Typ. 300mA @12V
2	GND	

5. Applications

5.1. I2C ID Address

5.2. Initialization

5.3. Deserializer (TI 914A) Settings

1. DS90UB914A, Set Mode and OSS Select   (OEN_OSS Override:1, OEN Select:1, OSS Select:1, MODE_OVERRIDE:1, MODE_12–bit HighFrequency:1), this setting can be configured by H/W pins' definition.
2. DS90UB914A, Selects the FPD-III serial input channel, if it is not connected to properly input channel.
3. DS90UB914A, Set DMS Camera Sensor SOC I2C ID in DS90UB914 Slave ID Register.
4. DS90UB914A, Set DMS Camera Sensor SOC I2C Alias ID in DS90UB914 Slave Alias ID Register.

5.4. Sensor (AR0144AT) Register Settings

1. Setting 720P 30fps
2. Initial registers setting to Sensor with I2C interface :

   (The sensor registers file will be provided under NDA and/or samples purchased)

5.3 LED Setting
  N/A

6. Special Note

There is no ISP (Image Signal Processor) inside this camera, only AE function is applied in this camera. Raw image data 12bits are captured and transmitted from camera through LVDS cable.Usually, Gamma curve is applied to get 8-bit image to improve dynamic range for application.
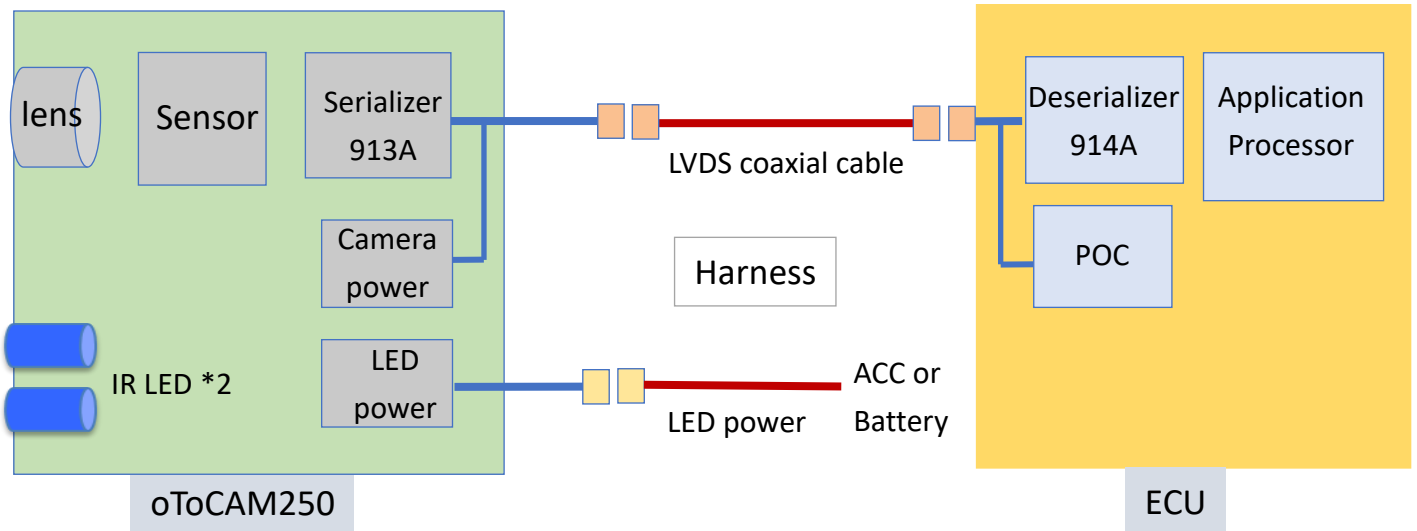
7. System Configuration (TBD)

Figure 3. System Configuration

TI DS90UB914A or TI DS90UB954 must be used as deserializer in ECU for connecting oToCAM250.