

DESIGNCORE™

DRIVER MONITORING SYSTEM (DMS) DEVELOPMENT KIT

Rapid DMS development with D3 and FotoNation

D3 Engineering helps customers develop in-cabin driver monitoring systems and get to market fast. The kit features industry-leading algorithms from FotoNation running on the proven D3 DesignCore™ rugged vision platform with Texas Instruments TDA3x processor. It includes two D3 camera modules for driver monitoring and iris tracking.

DMS ALGORITHMS FROM FOTONATION

FotoNation algorithms include face detection and tracking, 3D facial feature detection, eye gaze, face recognition, and iris recognition. They enable state-of-the-art attentiveness assessment and fatigue detection, as well as in-cabin security and customization options based on driver identity. They leverage FotoNation's growing annotated facial database and use-case validation.

AUTOMOTIVE PROCESSOR EXPERTISE FROM D3

D3's DesignCore™ RVP-TDA3x electronics control unit (ECU) integrates Advanced Vision Processors from Texas Instruments into a production-intent design. The software frameworks include vision SDK from TI and D3 Engineering's advanced vision software frameworks.

CAMERA MODULE

Each kit includes two D3CM-IMX290 camera modules — one for driver monitoring and one for driver monitoring plus iris tracking — with the addition of integrated IR illumination for sensing and an RGB LED for user feedback.

SYSTEM DEVELOPMENT

Use the kit for driver monitoring system evaluation and technology demonstrations. Work with D3 Engineering for rapid development of your EVT or A-Sample and full system development services. Get your DMS product to market faster, with less risk.



FotoNation computational imaging algorithms on D3's RVP-TDA3x ECU with D3CM Camera Modules. Speed development of DMS systems with D3 Engineering.

FEATURES

DMS Features

- Face detection
- Head position
- Eye opening levels
- Head orientation
- Eye position
- Drowsiness/fatigue detection
- Eye gaze
- Feature point in the input image system

Hardware Features

- Rugged Vision Platform with TDA3x SoC
- Integrated ISP
- 2MP automotive imager
- Integrated IR illumination
- Optimized optics for head tracking and iris tracking
- Audio and visual alerts

Advanced Feature Sets

- Multiple levels of safety redundancy for both eye and facial points
- Effective in all lighting conditions
- Biometrics-ready with both face and iris driver authentication
- Works with glasses, sunglasses, and partial coverage face masks (obstructed face detection)
- Real time operation with low latency and high degree of precision accuracy
- Tolerant to movement in camera position
- Ready for Rapid Development of DMS Applications with D3 Engineering Design Services

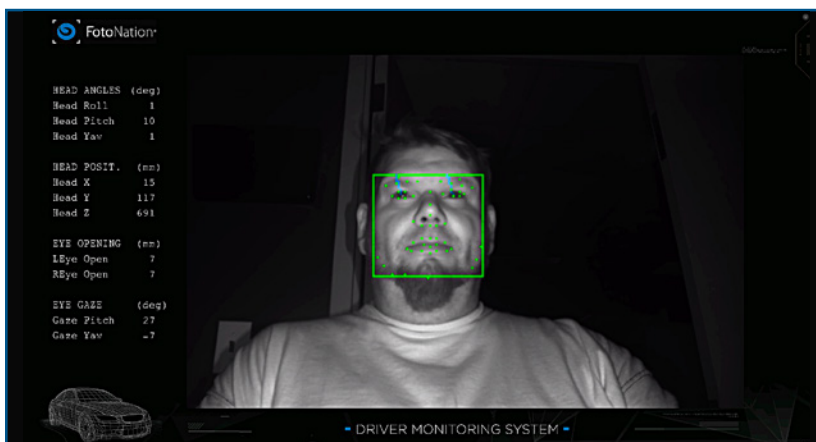
KIT CONTENTS

Hardware

- RVP-TDA3x Rugged Vision Platform ECU with 4Ghz FPD-Link™ III SerDes
- D3CM-IMX290-DMS Camera Module with illumination (driver monitoring)
- D3CM-IMX290-IRIS Camera Module with illumination (driver monitoring + iris tracking)
- HD Video Monitor
- Tripods, Connectors & Cables

Software

- Texas Instruments Vision SDK
- D3 Engineering Advanced Vision Frameworks
- FotoNation DMS + Iris Tracking Application Library with evaluation licensing (delivered separately from FotoNation)



SPECIFICATIONS

RVP-TDA3x ECU

Processor	TDA3x SoC
Processor Cores	2x DSP, 1x IPU/M4 with 2x CPUs, 1x EVE, 1x ISS
Video Inputs	4x FPD-Link™ 4Gbps Video Inputs (4GHz)

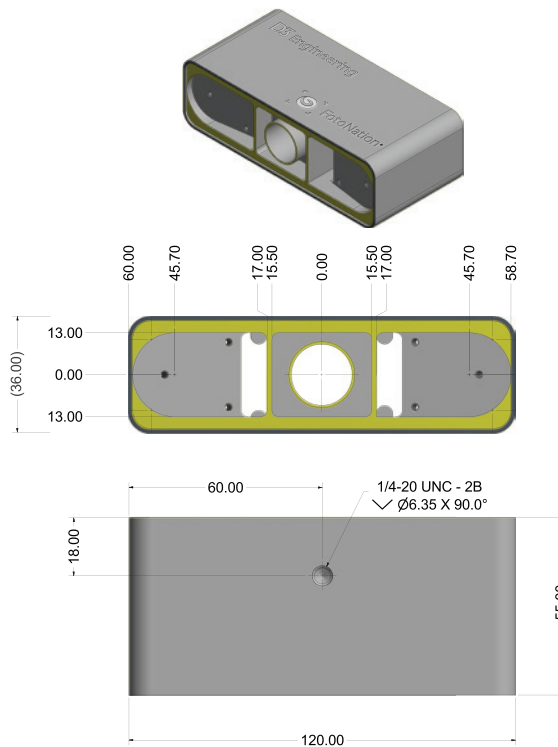
Refer to RVP-TDA3x Development Kit Data Sheet for complete specifications

Display Output	1x HDMI
Interface	Ethernet, CAN bus, Serial
Power	Automotive 9VDC to 40VDC with reverse bat

D3CM-IMX290-DMS Camera Module

Sensor	Sony IMX290
Resolution	1080p HD (1920x1080)
Frame Rate	60fps Default (120fps Max)
Video Output	MIPI CSI-2 with 4Gbps FPD-Link™ III serialization
Illumination	850nm IR with RGB LED for user feedback
Optics	Sunex DSL355A-F2.8 with bandpass 850nm IR filter

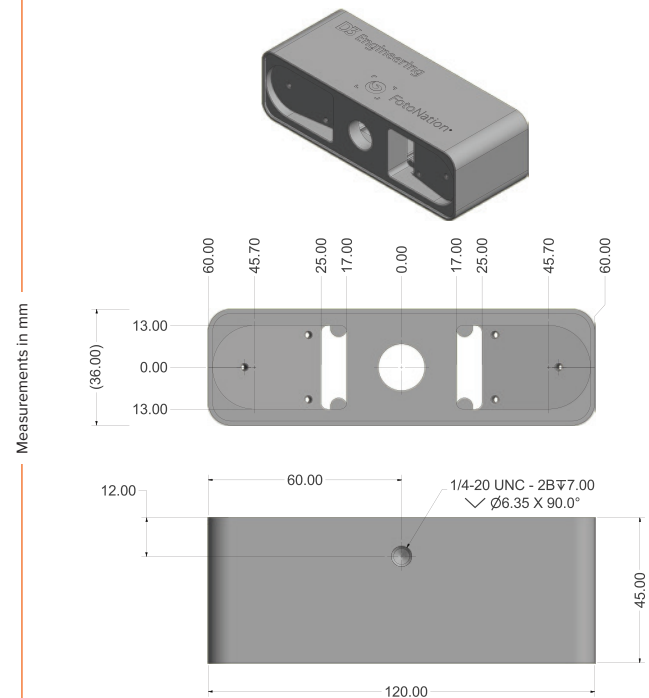
Refer to D3CM-IMX290 Camera Module Data Sheet for additional specifications



D3CM-IMX290-IRIS Camera Module

Sensor	Sony IMX290
Resolution	1080p HD (1920x1080)
Frame Rate	60fps Default (120fps Max)
Video Output	MIPI CSI-2 with 4Gbps FPD-Link™ III serialization
Illumination	810nm IR with RGB LED for user feedback
Optics	Sunex DSL945D-2.5 with bandpass 810nm IR filter

Refer to D3CM-IMX290 Camera Module Data Sheet for additional specifications



ACCELERATE TIME-TO-MARKET

D3 Engineering will leverage our industry-proven DesignCore™ Platforms and Reference Designs to meet your unique product requirements, while minimizing technical- and schedule-risk for your development program.

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