netradyne | driver•i

Driver•i D-430

Technical Specifications

Overview

Driveri® is an AI powered vision based IoT system, sold as a product to fleets. The device is installed in trucks/cars behind the rear-view mirror, and the power is supplied from the car battery through a Power cable. The device is capable to connect with the OBD II/J1939 of the vehicle to collect the engine data. This device is passive to the driver.

When the truck is running, the device captures 360° videos where the outward facing camera is the primary recording and other 3 cameras are optionally configured as per the customer requirement. The recorded videos are processed (using our patented machine learning algorithms) on the device together with the other sensory data and can detect any events related to driving behavior and driver behavior.

When an event is detected, an alert together with the supporting processed data is uploaded to the cloud dashboard where the events and related data can be accessed by the fleet manager. The device has 2 buttons on the bottom side of the device, when pressed creates alerts which are user generated. 2 LEDs on driver facing side indicate the current operational state of device.

RAM & Storage

Memory (Ram)	4GB LPDDR4 @ 16000MHz Storage
Storage	16 GB eMMC (System) + 128GB eMMC (Video)
Expandable Storage	Up to 512GB via eMMC

Physical Dimensions

Length x Width x Height	127mm x 96.2mm x 45.4mm / 5 x 3.78 x 1.78 in
Color	Black
Case Material	Polycarbonate (PC)
Power Cable Length	3 meters
Power Cable Thickness	5.3 mm / 0.20in

Features

- **Nvidia TX2 Module**
  Dual-core Denver 2 64-bit CPU and quad-core ARM A57 complex NVIDIA Pascal™ architecture with 256 NVIDIA CUDA cores - 1.3 TFLOPS(FP16)
- **Outward facing camera with 120dB in HDR mode**
- **Inward facing camera with IR LED for night vision**
- **Connectivity - LTE / WiFi / BT**
- **2 LED indicators to represent device state**
- **Integrated microphone & speaker**
- **4GB RAM + 128GB eMMC based storage**
  Storage expandable up to 256GB
- **Inertial sensor (Accelerometer & Gyro), Thermal sensor**

SuperCap Cable

GPS Cellular Module

Camera Specifications

Camera	Outward	Inward	Right & Left
Pixel Size	2.8µm OmniBSI-2 pixel	3µm x 3µm	3µm x 3µm
Dynamic Range	>90dB dual capture; >120dB in HDR mode	72db (not true HDR)	72db (not true HDR)
Responsivity	~5 V/lux sec	3.3 V/lux sec	3.3 V/lux sec
Lens Size	1 / 2.7"	1 / 4"	1 / 4"
F No.	1.6	2.0	2.0
Field of View	74° (H) 57° (V) 90° (DI)	148° (H) 80° (V) 168° (D)	127° (H) 82° (V) 143° (D)
Construction	6G – Visible	6G + IR Filter - Dual Band Pass	2G2P – Visible with IR Filter

Electrical Specification

Input Voltage	10V-15V
Input current (full operation)	12V / 3A
Max Power Consumption	30W
Signal Input – High Voltage (Pos)	+17V
Signal Input – Low Voltage (Neg)	+7 V
Operating Temperature	-5° to 55° C
Active Mode Power Consumption	
Peak Current (A)	2.3A @ 12V
RMS Current (A)	1.12A @12V
Peak Power (W)	27.6W
RMS Power (W)	13.5W
Periodic Wake-up Mode Power Consumption**	
Peak Current (A)	1.6A @ 12V
RMS Current (A)	0.78A @ 12V
Peak Power (W)	19.2W
RMS Power (W)	9.4W
Shutdown Mode Power Consumption	
Current (A)	14mA @ 12V
Power (W)	168mV
Average Power consumption***	38.7mAh***

Processor & GPU Specifications

GPU	NVIDIA Pascal™ architecture with 256 NVIDIA CUDA cores
CPU	6Dual-core NVIDIA Denver 2 64-bit CPU & Quad-core ARM Cortex A57 MPCore
Video Encoding H.265	1080p @ 30 fps
Video format	MP4 with H.265
Sensors	IMU –Accelerometer + Gyro, Temperature, Ambient Light

* These values are measured at room temperature of +25°C
** Power Consumption (6 min/ every 3 hours after vehicle shutdown)
*** As per default Periodic wake-up Mode defined in ** with ignition off

Battery Consumption

3 minutes for every 360minutes	20.4mA
6 minutes for every 180 minutes	38.7mAhh

Wireless Connectivity & I/O

LTE Connectivity	4G-LTE - Bands 2, 4, 12, 66, 71
SIM Connector	No, embedded SIM
Wi-Fi	802.11 b/g/n/ac
Bluetooth	v4.0

Mechanical Shock

8Pulse Type	Half Sinusoidal
Accelerator	50gm
Pulse Duration	6ms
Number of shocks per axis	20 Nos. (10 positive and 10 negative)

Enhanced Edge Computing
Nvidia TX2 - Double efficiency, double computing power for better machine learning, minutes/mile analysis

Quad HD Camera
Front:
HDR / 1080p / 30fps/120dB HDR
Inward:
HD / 1080P /30FPS
Side:
HD/720P

Storage
Event access: Up to 100 hours of real-time searchable video stored on device

Driver Alerts
Driver initiated alerts

Connectivity
Wi-Fi and Bluetooth

Audio Real Time Notifications
Speeding / Following Distance / Distracted / Seatbelt / Drowsy

Vehicle Data
J1939 / OBDII
Data integrity
API / Data Integration

Internal Sensors
9 Axis accelerometer best-in-class low-light performance image sensor designed for a wide range of automotive imaging