

IN-DSM-Camera

Product Specification

The **IN-DSM-1080** is a specialized Driver Status Monitoring (DSM) camera designed for automotive driver monitoring systems. This in-cabin monitoring camera is engineered to detect and analyze driver behavior, fatigue, and distraction in real-time. Equipped with 940nm infrared illumination for discrete night vision, this camera enables advanced driver assistance features including fatigue detection, distraction warning, and driver behavior analysis, contributing significantly to vehicle safety compliance and accident prevention.

Key Features

- Driver Status Monitoring (DSM) optimized
- 940nm IR illumination for covert night operation
- 1080P HD resolution with 6mm lens
- Compact in-cabin design with bracket mount
- Wide operating temperature range (-30°C to +70°C)

Specifications

Model Information

Parameter	Specification
Model Number	IN-DSM-1080
Product Type	DSM (Driver Status Monitoring) Camera
Application	In-vehicle driver monitoring system

Product Features

Feature	Description
Image Sensor	1/3" CMOS
Resolution	1920(H) × 1080(V)
Minimum Illumination	0.01 Lux (with IR on)
Shutter System	Auto Electronic Shutter, Auto Exposure, Auto White Balance
Lens	6mm focal length
Night Vision	940nm IR LED illumination (2 light bars)
Mounting	In-vehicle bracket installation

Detailed Specifications

Image & Video Parameters

Parameter	Specification	Description
Imaging Device	1/3" CMOS Sensor	High-quality CMOS image sensor
Effective Pixels	1920(H) × 1080(V)	2.1 Megapixels for detailed monitoring
Video System	PAL / 25fps	Standard PAL format at 25 frames per second
Clarity	HD 1080P (B/W mode in IR)	High definition monochrome in night mode
Video Output	AHD (Analog High Definition)	HD video over standard coaxial cable
Synchronization	Internal Sync	Self-synchronizing system
Audio	No Audio	Video-only output

Camera Settings

Parameter	Specification	Description
White Balance	Auto	Automatic color temperature adjustment
Electronic Shutter	Auto	Automatic exposure control
Current Consumption	150mA - 250mA	Low power consumption

Lens & Optics

Parameter	Specification	Description
Sensor Size	1/2.9"	Image sensor format
Focal Length	6.0mm	Optimized for driver face detection
Field of View	Approximately 50-60°	Focused coverage of driver position
Night Vision	940nm Wavelength (2 light bars)	Covert IR illumination invisible to human eye

Electrical Specifications

Parameter	Specification	Description
Power Supply	DC 12V ±10%	Standard automotive voltage
Operating Current	150mA - 250mA	Varies with IR illumination status
Power Consumption	1.8W - 3W	Maximum power with IR on

Environmental Specifications

Parameter	Specification	Description
Operating Temperature	-30°C ~ +70°C (-22°F ~ +158°F)	Extended automotive temperature range
Operating Humidity	< 90% RH (Non-condensing)	Protected against humidity
Storage Temperature	-40°C ~ +80°C	Safe storage temperature range

Mechanical Specifications

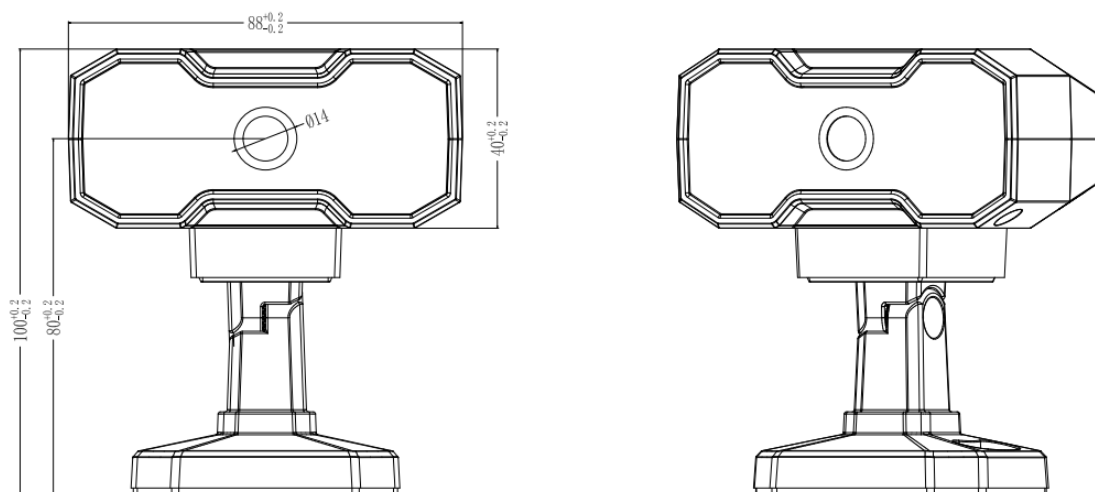
Parameter	Specification	Description
Connector Type	GX12 4-Pin Female	Industry-standard M12 locking connector for vibration resistance
Cable Length	1900 mm	Flexible cable length for easy installation
Housing Shape	Plastic Square	Compact form factor
Housing Color	Black	

Product Images

Camera Module Overview



Product Dimensions (mm)



Connector Pin Definition

GX12 4-Pin Circular Aviation Connector, Female Receptacle (Socket) Connector Pinout:

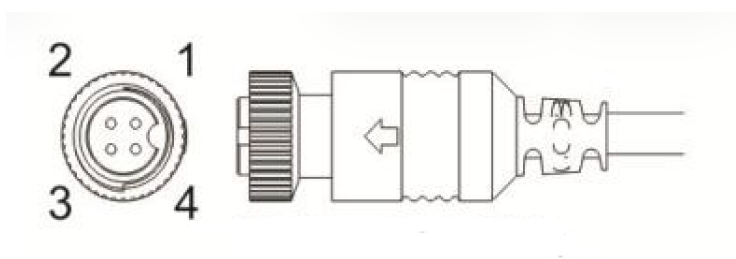
Pin 1: +12V DC Power Input

Pin 2: DC Ground (GND)

Pin 3: NONE

Pin 4: Video Output (AHD)

Note: Refer to actual product documentation for exact pin configuration



Technical Highlights

Driver Status Monitoring (DSM) Capability

This camera is specifically designed for DSM systems that detect:

Driver Condition	Detection Method
Fatigue/Drowsiness	Eye closure, head position, yawning detection
Distraction	Face orientation, attention monitoring
Phone Usage	Hand position and object recognition
Smoking	Hand-to-face gesture detection
Absent Driver	Seat occupancy monitoring
Driver Identity	Face recognition for fleet management

940nm Infrared Night Vision

The camera's covert IR illumination provides:

Advantages:

- **Invisible to Human Eye:** 940nm wavelength is completely invisible, preventing driver distraction
- **Discrete Operation:** No visible red glow unlike 850nm IR LEDs
- **24/7 Monitoring:** Continuous monitoring capability day and night
- **Low-Light Performance:** Clear images in complete darkness
- **Energy Efficient:** LED bars provide focused illumination

Applications:

- Nighttime fatigue detection
- Low-light driver behavior analysis
- Discrete monitoring without driver awareness

6mm Lens Optimization

The 6mm focal length is optimized for:

- **Driver Face Detection:** Ideal framing of driver's face and upper body
- **Depth of Field:** Appropriate focus range for in-cabin monitoring
- **Field of View:** Narrow enough to avoid passenger interference
- **Detail Capture:** Sufficient resolution for eye and mouth detection

In-Cabin Design Features

- **Black Housing:** Non-intrusive appearance that blends with vehicle interior
- **Compact Form Factor:** Minimal visual obstruction
- **Bracket Mount:** Flexible positioning for optimal viewing angle
- **Automotive Grade:** Designed for harsh in-cabin environment

Regulatory Compliance

DSM systems contribute to compliance with:

Regulation	Requirement	DSM Feature
EU General Safety Regulation	Driver drowsiness warning	Fatigue detection
C-NCAP	Driver monitoring systems	Behavior detection
Euro NCAP	Driver state monitoring	Distraction warning
China C-NCAP	Driver monitoring	Fatigue & distraction

Ordering Information

Product Code: IN-DSM-1080

For technical support, system integration assistance, and bulk orders, please contact the manufacturer or authorized distributor.

Revision History

Version	Date	Description
1.0	October 10, 2025	Initial Release

Document prepared by: **InHand Mobility Team**