

# SmartCam Datasheet



## Video Telematics Hub For Fleet Management

powered by

**ANDROID**

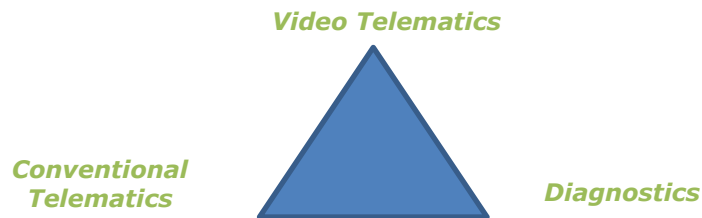
## Introduction

In today's commercial Telematics industry, there is a growing demand for on-board devices that can not only send sensors' data from the vehicle and driver environment for backend processing, but also analyze, detect and notify the driver in real-time upon any potential safety risk, operation faults, rules violation etc. Events such as near-collision, tail gating, unsafe lane departures, hard breaking, cornering, stop sign violations, over speeding, driver distractions, driver fatigue and more, comprise a rich set of information which is used by fleet managers to measure their drivers skills and performance and to deploy training and education programs which can result in improved fleet safety, reduced insurance claims and premiums, higher up-time, lower maintenance costs, etc.

**Micronet SmartCam\SmartHub-C** enables fleet managers to address all these safety events, not only through conventional Telematics sensors such as GPS, 3D accelerometer, I/O's and CANBUS connectivity, but also by providing the 'Full-picture' through a rich set of real-time, on-board video analytics and AI capabilities enabled by dual Automotive-grade camera for road and in-cabin monitoring, strong processing power and wireless LAN and WAN wireless connectivity, all packaged into a single device, saving costly installations of separate devices for ELD, Telematics, ADAS and Dashcams and saving upload data due to the local video analytics processing done on the device, and thanks to its powerful computing platform.

## Product information

**Micronet SmartCam\SmartHub-C** is a world pioneering, All-In-One Video Telematics device. An open and powerful Android platform, ruggedized, integrated and ready-to-go smart camera supporting complete Telematics features set designed for in-vehicle use. Coupled with a vehicle-connected interfaces, state of the art diagnostic capabilities and two cameras, it offers a video analytics and telematics services, addressing safety, vehicle health and tracking needs of your fleets. Micronet SmartCam\SmartHub-C provides a versatile, advanced and affordable mobile computing platform for a variety of Fleet Management and Video Analytics solutions. The powerful computing platform coupled with Android 9 operating system allows you to run your own applications or pick and choose from integrated Micronet Marketplace set of applications and services.



## Extended pool of services:

With ability to run multiple applications simultaneously, Micronet SmartCam\SmartHub-C allows Telematics Service Providers and System Integrators to extend their offering beyond their own applications, provide their customers with advanced third-party mobility and Video Analytics applications.

## In the vehicle:

Placed on the vehicle windshield, Micronet SmartCam\SmartHub-C functions as high-end cameras & on-board Telematics computer. With integrated GPS, rear and front cameras, cellular communications, various sensors and support for a variety of vehicle-bus and peripheral interfaces, Micronet SmartCam\SmartHub-C enables a host of Fleet Management and Video Analytics solutions such as: ADAS, Driver Fatigue, ELD/HOS, fleet tracking, driver behavior, real-time driver coaching, real-time fuel management, remote diagnostics, DVIR, communication with the backend and much more.

Micronet SmartCam\SmartHub-C's two cameras, together with its powerful processor and extended memory, allow it to run the advanced algorithms required for video analysis applications like: Tail gating monitoring, unsafe lane departure, collision warning, speed & stop signs detection, Driver fatigue, Driver distraction, Driver ID, passengers counting and more.

With a rich set of wireless and wired interfaces – WiFi hotspot, BT tethering and BLE, Bluetooth Audio, NFC, WiFi direct, multiple CAN channels (including open/customizable CAN libraries) and multiple I/O – Micronet SmartCam\SmartHub-C can function as an in-cab hub to which other devices, sensors and accessories easily connect.

Driver notification features such as system status LED, warning indicator, internal speaker and microphone are provided in addition for Device connection control and Driver alerting purposes. Micronet SmartCam\SmartHub-C lets drivers remain safe, effective and efficient with on-the-fly connectivity – anytime and anywhere – using cellular communication and WiFi. Its durable design withstands shocks and a range of temperatures, allowing drivers to operate freely in any environment. Installed on the windshield, Micronet SmartCam\SmartHub-C has a perfect view of the road and the cabin.



Micronet SmartCam\SmartHub-C is a superior and cost-effective solution for Video Telematics.

## Micronet SmartCam\SmartHub-C models:

Four models of Micronet SmartCam\SmartHub-C are available supporting various features and interfaces connection. All models include powerful computing power, extended memory, GPS, Wi-Fi, Bluetooth, NFC and more. In addition, each model supports a set of additional features:

The **Standard model** supports a basic set of the solution interface connectivity such as: Vehicle Power, Ignition switch signal, I/O, USB, RS232, WiFi, BT and NFC.

The **Intermediate model** supports all the Standard Model features with an addition of: Cellular communications (3g, LTE).

The **Enhanced model** supports all the Standard Model features with an addition of: Cellular communications (3g, LTE), USB (2.0 Host) and 2 Vehicle BUS ports for J1939/OBD connectivity.

The **SmartHub-C model** supports all the Standard Model features with an addition of: Cellular communications (3g, LTE), USB (2.0 Host) and 2 Vehicle BUS ports for J1939/OBD connectivity. This model doesn't include cameras.

## Compatibility with Micronet SmartHub:

Micronet SmartCam\SmartHub-C is based on the same hardware and software platform as the Micronet SmartHub & SmarTab, Micronet's next generation Android On-Board-Computer. Telematics Service Providers who develop applications for Micronet SmartHub / SmarTab can also easily adjust and run them on Micronet SmartCam\SmartHub-C for fleet customers who need tablets as part of their solution.

## Shorter development cycles:

Powered by an open Android platform, the Micronet SmartCam\SmartHub-C platform offers a comprehensive development environment for independent application programming and system integration. With a huge ecosystem of Android development tools and software frameworks – and with a flourishing community of developers – working with Android devices leads to rapid development and integration cycles.

## Lower Total Cost of Ownership:

Designed to operate in harsh automotive and field environments, withstand shocks and vibrations and function reliably under broad-ranging temperatures, Micronet SmartCam\SmartHub-C lowers the Total Cost of Ownership.

## Product Design – SmartCam B\I\E



## Product Design – SmartHub-C



## SmartCam\SmartHub-C Platform Key Features

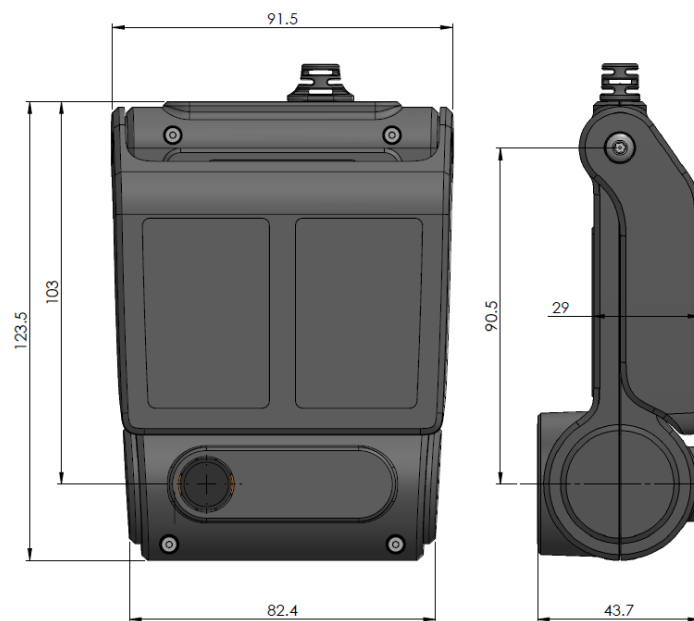
SmartCam\SmartHub-C models comparison				
Feature	Basic	Intermediate	Enhanced	Hub SmartHub-C
Camera	2	2	2	0
Cellular	X	4G LTE	4G LTE	4G LTE
Vehicle bus	X	X	CAN-J1939/SWC	CAN-J1939/SWC
Memory	2GB/16GB	2GB/16GB	2GB/16GB	2GB/16GB
USB	3.0 High Speed Debug / Download	3.0 High Speed Debug / Download	1 port on USB HUB 2.0 (Host) [Or ADB 3.0 High Speed]	1 port on USB HUB 2.0 (Host)) [Or ADB 3.0 High Speed]

Device Key Features	Details
<b>Platform Core</b>	
Operating System	Google Android™ 9.0
Development Environment	Google Android™ ADT
Processor	Qualcomm, SDM450 – 2 GHz (8 x ARM® Cortex™ A53)
RAM	2GB
ROM	16GB
Memory Card Support	Micro SD card slot - up to 128 GB (internal)
Watchdog	<ul style="list-style-type: none"> <li>- SW based for application recovery</li> <li>- HW based for system recovery</li> </ul>
<b>Driver Interface</b>	
HW Keys	1 X Configurable, Multi-purpose
LEDs	1 X System status (3 color), 1 X Driver feedback
Light Sensor (SmartCam B\I\E)	Configurable for IR LED activation
Internal Microphone	High sensitive
Internal Speaker	1 X 1W
<b>Wireless Communication (with Integrated, Onboard internal antennas)</b>	
Cellular (Enhanced version)	<ul style="list-style-type: none"> <li>- FDD 1/2/3/4/5/7/8/12/13/17/20/28</li> <li>- GSM 850/900/1800/1900</li> <li>- WCDMA 1/2/4/5/8 (DC-HSPA+)</li> <li>- 3FF, Micro SIM (Internal)</li> </ul>
GPS	<ul style="list-style-type: none"> <li>- 50 Channel, NMEA 0183, AGPS.</li> <li>- Satellite Systems Support: GPS, GLONASS, Beidou, Galileo</li> </ul>

Device Key Features	Details
<b>Wireless LAN</b>	<ul style="list-style-type: none"> <li>- WiFi - 802.11 b/g/n/ac, 2.4/5 GHz</li> <li>- Dual mode, WiFi Direct, HotSpot - up to 10 users</li> </ul>
<b>Bluetooth</b>	<ul style="list-style-type: none"> <li>- V4.1 (Voice and Data) / BLE</li> </ul>
<b>NFC</b>	<ul style="list-style-type: none"> <li>- NXP, PN547, 13.56MHz, IS15693 and IS18000-3</li> </ul>
<b>Motion Control</b>	
<b>Motion Sensors</b>	<ul style="list-style-type: none"> <li>- 3D Accelerometer (2g – 16g)</li> </ul>
<b>Integrated Cameras (not included in SmartHub-C model)</b>	
<b>Road Facing</b>	<ul style="list-style-type: none"> <li>- 2MP, Full HD, 1080p</li> <li>- Low light sensitivity</li> <li>- 86dB dynamic range (HDR mode)</li> <li>- 30fps</li> <li>- 110° FOV</li> </ul>
<b>Cabin Facing</b>	<ul style="list-style-type: none"> <li>- 2MP, Full HD, 1080p</li> <li>- Near Infrared sensitivity + IR LEDs</li> <li>- 68dB dynamic range (multiple exposure)</li> <li>- 120fps</li> <li>- 140° FOV</li> </ul>
<b>Power</b>	
<b>Internal Battery</b>	Li-Ion 135mAh for ordered shutdown upon power-cut
<b>Mechanical</b>	
<b>Vibration</b>	SAE J1455 Compliant
<b>Mechanical Shock</b>	SAE J1455 Compliant
<b>Environmental</b>	
<b>Temperature Range</b>	<ul style="list-style-type: none"> <li>- Operating: -4 °F to +158 °F (-20 °C to +70 °C)</li> <li>- Storage: -22 °F to +176 °F (-30 °C to +80 °C)</li> </ul>
<b>Humidity</b>	95% ±5%RH, +40°C, non-condensing
<b>IP</b>	IP40
<b>Drop</b>	MIL-STD-810G Compliant
<b>RoHS</b>	RoHS II Compliant
<b>Certifications</b>	
<b>Standards Compliance</b>	FCC, PTCRB, GCF, IC, CE, E-Mark (pending)
<b>Communication Interfaces</b>	
<b>RS-232</b>	<ul style="list-style-type: none"> <li>- 1 X RS-232 (* Basic &amp; Intermediate models only)</li> <li>- 1 X RS232 for Debug</li> </ul>
<b>USB</b>	<ul style="list-style-type: none"> <li>- 1 X USB (Micro)</li> <li>- [Basic\Intermediate: 3.0 High Speed]</li> <li>- [Enhanced\Hub-C: USB HUB 2.0 (Host)]</li> </ul>
<b>Peripherals Control</b>	
<b>GPIO</b>	<ul style="list-style-type: none"> <li>- 1 X inputs (0 – 32V)</li> <li>- 1 X Open collector Output</li> <li>- 1 X I/O (configurable)</li> </ul>
<b>Vehicle Diagnostic</b>	

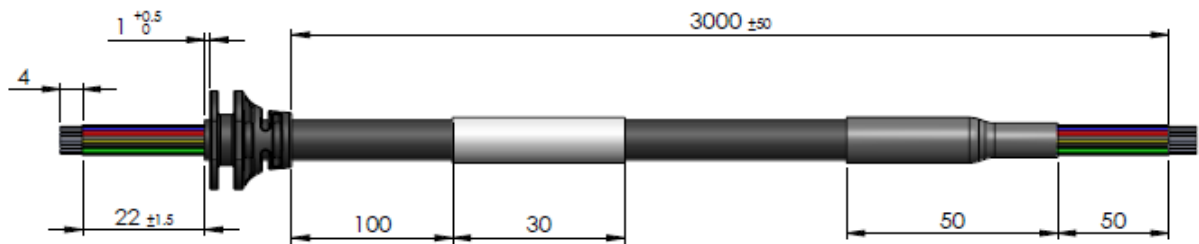
Device Key Features	Details
<b>CAN BUS (Enhanced)</b>	<ul style="list-style-type: none"> <li>- 2 X CAN channels OR 1 X CAN</li> <li>- 1 X SWC (single Wire CAN)</li> </ul>
<b>Power</b>	
<b>Input Power</b>	<ul style="list-style-type: none"> <li>- Direct vehicle battery connection (8-32V)</li> <li>- ISO 7637 Compliant</li> </ul>

## Dimensions



## Cables

SmartCam\SmartHub-C Standard cable (GCAB616):

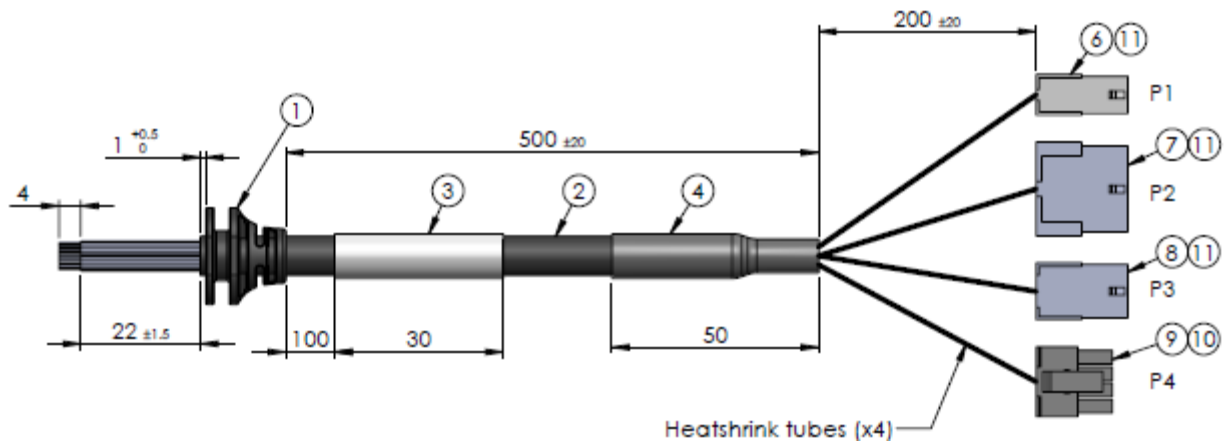


	SIGNAL	COLOR	AWG
1	POWER_INPUT	RED	24
2	POWER_GND	BLACK	24
3	IGNITION	YELLOW	24
4	GND	BLACK/RED	24
5	GP_IN	BROWN	24
6	GP_OUT	PURPLE	24
7	RS232_TX	RESEDA	24
8	RS232_TX_DBG	BLUE	24
9	RS232_RX_DBG	PINK	24
10	GND	BLACK/WHITE	24
11	RS232_RX	WHITE/RED	24
12	GP_IO	ORANGE	24

SmartCam\SmartHub-C Enhanced cable (GCAB617):

	SIGNAL	COLOR	AWG	TWISTED	SHIELD
1	POWER_INPUT	RED	24		
2	POWER_GND	BLACK	24		
3	IGNITION	YELLOW	24		
4	CAN1_P	GRAY	24	T1	
5	CAN1_N	WHITE	24	T1	
6	J1708_P/CAN2_P	RED/BLACK	24	T2	
7	J1708_N/CAN2_N	GREEN	24	T2	
8	GP_OUT	ORANGE	24		
9	RS232_TX	RESEDA	24		
10	RS232_TX_DBG	BLUE	24		
11	RS232_RX_DBG	PINK	24		
12	GND	BLACK/RED	24		
13	RS232_RX	ORANGE/RED	24		
14	GP_IN	WHITE/BLACK	24		
15	GP_IO	BROWN	24		
16	SWC	PURPLE/RED	24		

SmartCam\SmartHub-C Development Kit cable (GCAB618):



SIGNAL	COLOR	AWG	TWISTED	P1	P2	P3	P4
POWER_INPUT	RED	24		4	8		
POWER_GND	BLACK	24		3	7		
IGNITION	YELLOW	24		1	10		
CAN1_P	GRAY	24	T1		1		
CAN1_N	WHITE	24	T1		2		
J1708_P/CAN2_P	RED/BLACK	24	T2		3		
J1708_N/CAN2_N	GREEN	24	T2		4		
GP_OUT	ORANGE	24				2	
RS232_TX	RESEDA	24				4	
RS232_TX_DBG	BLUE	24					2
RS232_RX_DBG	PINK	24					1
GND	BLACK	24				6	3
RS232_RX	ORANGE	24				5	
GP_IN	WHITE/BLACK	24				1	
GP_IO	BROWN	24				3	
SWC	PURPLE	24			9		

Development kit extension cables are available:

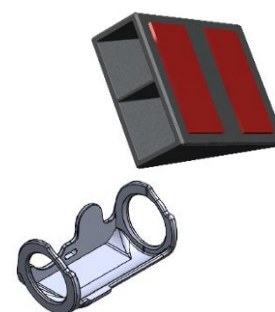
Function	Extension cables available	
Power\Ignition	GCAB987	Ignition switch
	GCAB977	Lighter connector
CAN\1708\SWC	GCAB564	J1939 Type I Plug\Receptable
	GCAB565	J1939 Type II Plug\Receptable
	GCAB576	OBDII Male\Female
RS232\IO	GCAB562	9-Pin DSUB
RS232 Debug	GCAB563	9-Pin DSUB

## Ordering information

Model	P\N
SmartCAM <b>Basic</b>	MCAM-B001-000
SmartCAM <b>Intermediate</b>	MCAM-I001-000
SmartCAM <b>Enhanced</b>	MCAM-E001-000
SmartHub-C	MCAM-H001-000

## Accessories

- **Windshield adaptor** for angled\split-pane windshield
- **Dual cam cover**



- **Driver cam cover**

Model	P\N
SmartCam\SmartHub-C Driver camera Cover	GPLSMCAM-15
SmartCam\SmartHub-C Dual camera Cover	GPLSMCAM-16
SmartCam\SmartHub-C Windshield adaptor 5°	GPLSMCAM-17/1
SmartCam\SmartHub-C Windshield adaptor 10°	GPLSMCAM-17/2
SmartCam\SmartHub-C Windshield adaptor 15°	GPLSMCAM-17/3

