TREK-60

Modular AI Platform for Scalable Surveillance and Fleet Management

Features

- Scalable computing performance via CPU boards for specific application requirements
- Advanced video surveillance system with AI accelerator for video AI capabilities
- Modular design supports the latest RF communication technologies
- Rugged platform with automotive-grade shock and vibration tolerance, wide operating temperature, and wide power input range for harsh environments
- Easy pairing with second-generation TREK displays via a single-cable connection

Introduction

Aimed at fleet management and surveillance applications, TREK-60 features a 7th generation Intel® Core™ i7/i5/Atom™ E3900 quad-core processor for high-performance computing, as well as up to eight camera input channels and an integrated AI accelerator for scalable video stream edge inferencing. The RF extension module with automotive-grade FAKRA connector provides GNSS, WLAN, Bluetooth, and WWAN capabilities for real-time communication, vehicle tracking, and data collection. The embedded dual CAN bus supports diverse vehicle protocols, including raw CAN, J1939, and OBD-II, for vehicle monitoring and diagnostics, while the intelligent vehicle power management system supports ignition on/off/delay and wake-up event control. Moreover, the rugged design supports a wide operating temperature range (-30 ~ 70 °C/-22 ~ 158 °F), and is compliant with MIL-STD-810G and 5M3 specifications for vibration/shock resistance, ensuring stable operation in harsh industrial environments.
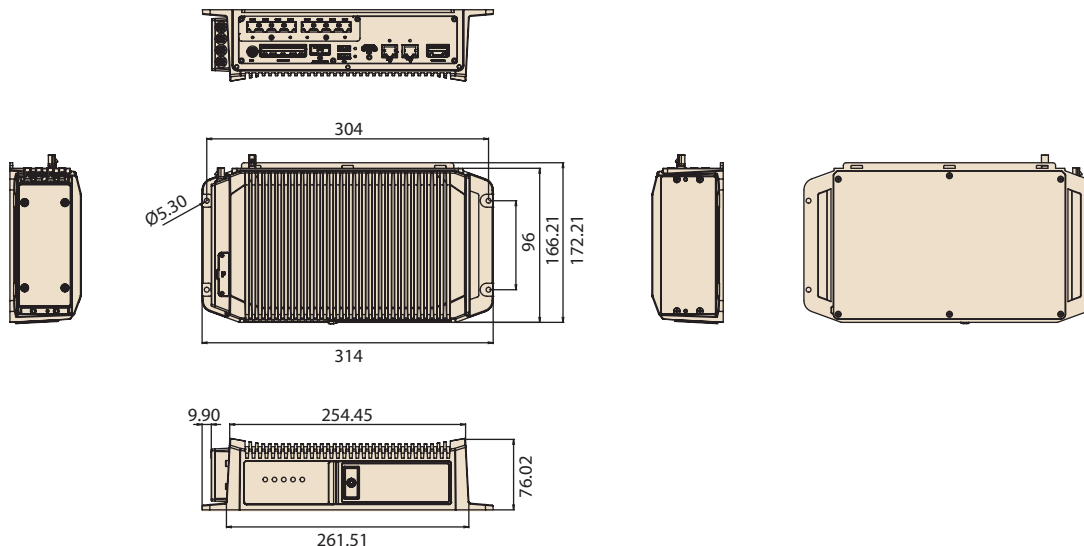
Specifications

Core			
Core	Processor	Intel® Atom™ X5-E3940 quad-core, 1.8 GHz	Intel® Core™ i7-7600U dual-core 3.9GHz Intel® Core™ i5-7300U dual-core 3.5GHz
	Memory	1 x SODIMM, up to 8 GB DDR3L 1866 non-ECC memory	2 x SODIMM, up to 32 GB DDR4 2133 non-ECC memory (with dual channel support)
	Graphics	Integrated 2D/3D graphics engine	
	Operating System	Windows 10 IoT Enterprise 2019 LTSC 64bit, Ubuntu 18.04 LTSB 64 bit	
Storage	mSATA (OS Disc)	1 x internal mSATA, up to 128 GB (supports UMLC/MLC/TLC industrial-grade storage and system bootup)	
	SSD	1 x externally accessible 2.5" SSD tray with key-lock protection, up to 7.6TB TLC industrial-grade SSD (supports system bootup)	
	Micro SD Card (upon request)	1 x externally accessible micro SD card reader with key-lock protection, up to 128 GB MLC SDHC Class 10 UHS-I (supports system bootup)	
Display	Smart Display Port 2.0*	12V/2A power output for TREK displays 1 x High-resolution video and audio 1 x USB 2.0 1 x Power button 1 x Reset button	
	HDMI	1 x HDMI 1.3	
Sensors		1 x G-sensor 1 x Gyroscope	
Expansion	Edge AI	1x full-size mini-PCIe slot reserved for Advantech VEGA-330 Edge AI module	
I/O	Vehicle I/O 2.0	2 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; configurable via SDK or Demo program) 1 x J1708 (supports J1587) Vehicle ignition and battery power input	
	Generic I/O 2.0	2 x 4-wire RS-232 (default)/RS-485 2 x 2-wire RS-232 6 x Isolated DI (dry/wet), 4 x isolated DO 2 x Line-Out 2 x Mic-In	
	Standard I/O	1 x USB 3.0 Type A (front) 2 x USB 2.0 Type A 2 x Giga LAN (with optional lock design) (optional 12W power injector or M12 connector)	
	LED	5 x LED, Power (red), Storage (yellow), WLAN (green), WWAN (green), and GPS (yellow)	
	Power Button	Via second-generation TREK display; system configured to wake-on-ignition as default	
	CCMOS Button	1 x Clear CMOS button (front with key-lock protection)	
	Reset Button	1 x Reset button (front with key-lock protection)	

*For pairing with a second-generation TREK-306 display via a single-cable connection

Dimensions

Unit: mm

Specifications Cont.

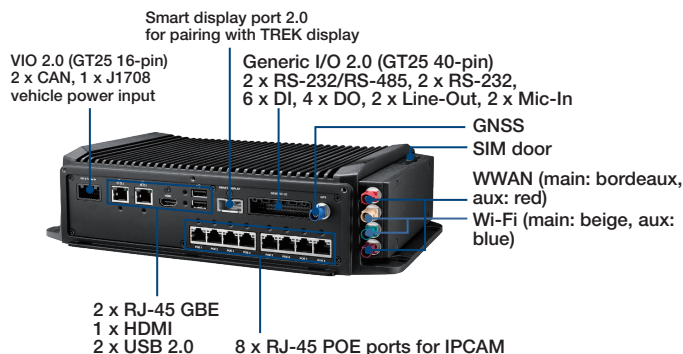|		
Video Surveillance	IP Camera	8 x RJ-45 for 10/100 Base T(X) PoE, 802.3af/at compliant Power output shared by all cameras is limited to 60W* PoE power control and Ethernet management (via SDK or Demo program)
Expansion* (DSRC/V2X/5G/LTE via I/O extension)	5G/LTE	1 x M.2 3052 B key reserved for Sierra Wireless EM9190 module, 1 x micro SIM reserved
	DSRC	1 x mPCIe reserved for Unex V2X system-on-module
	Edge AI	1 x M.2 2230 A+E key reserved for Advantech VEGA-320 Edge AI module
RF (WLAN/WWAN via RF extension)	WLAN/Bluetooth	IEEE 802.11a/b/g/n/ac + Bluetooth V5.0 combo module via full-size mini-PCIe slot Optional high-power WLAN module or 0.5s fast roaming technology available upon request
	WWAN	1 x Sierra Wireless WP76xx via full-size mini PCIe slot for 4G (LTE Cat-4, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT) 1 x externally accessible mini SIM card socket with cover, 1 x optional embedded SIM available upon request
	GPS	Built-in u-blox Neo-M8N supports Concurrent reception of up to 3 GNSS (GPS, Galileo, GLONASS, BeiDou) Optional Neo-M8U/Neo-M8L (dead reckoning) available upon request
	Antenna	5 x Fakra-type antenna holes for 1 x GPS, 2 x Wi-Fi+BT, 2 x WWAN/LTE with Wi-Fi/WWAN MIMO support
Power Supply	Voltage Input	12/24 V power (9 ~ 32 V_{DC} input, ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off/delay) PoE power total/on/off management(via SDK or Demo program) Supports wake-up events: wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor System power protection (vehicle battery low voltage protection) System monitoring and diagnostics
Mechanical	Dimensions (W x D x H)	314 x 165.5 x 75.1 mm/12.36 x 6.51 x 2.95 in
	Weight	4.2 kg/9.25 lb (excludes SSD)
Environmental	IP Rating	IP65 (excludes rear I/O), optional IP54/IP65-rated I/O cover (available upon request)
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455, ISO 7637-2, SAE J1113
	RF Regulation	CE (RED), FCC ID, IC ID
	Operating Temperature	-30 ~ 70 °C/-22 ~ 158 °F (Atom™ X5-E3940), -20 ~ 50 °C/-4 ~ 122 °F (Core™ i7/i5; -20 ~ 60 °C/ -4 ~ 140 °F upon request)
	Storage Temperature	-40 ~ 80 °C/-40 ~ 176 °F

*PoE power limit is defined according to system configuration and usage scenario.

* Expansion is available upon request

Accessible Front Door

Key screw

LED indicators
Power (red), Storage (yellow),
WLAN (green), WWAN (green), GPS (yellow)

Flexible Rear I/O

Smart display port 2.0
for pairing with TREK display

VIO 2.0 (GT25 16-pin)
2 x CAN, 1 x J1708
vehicle power input

Generic I/O 2.0 (GT25 40-pin)
2 x RS-232/RS-485, 2 x RS-232,
6 x DI, 4 x DO, 2 x Line-Out, 2 x Mic-In

GNSS
SIM door
WWAN (main: bordeaux,
aux: red)
Wi-Fi (main: beige, aux:
blue)

2 x RJ-45 GBE
1 x HDMI
2 x USB 2.0

8 x RJ-45 POE ports for IPCAM

Ordering Information

Part Number	Description
TREK-60-5APAXN0E	i5-7300U, 4/64 GB, GPS/Wi-Fi/LTE (EU), 8 PoE/SSD kit/W10 (64 bit)
TREK-60-5APBXN0E	i5-7300U, 4/64 GB, GPS/Wi-Fi/LTE (US), 8 PoE/SSD kit/W10 (64 bit)
TREK-60-MBPAXN0E*	X5-E3940, 4/32 GB, GPS/Wi-Fi/LTE (EU), 8 PoE/SSD kit/W10 (64 bit)
TREK-60-MBPBXN0E*	X5-E3940, 4/32 GB, GPS/Wi-Fi/LTE (US), 8 PoE/SSD kit/W10 (64 bit)
TREK-60-72PN0E	i7-7600U, 8GB, GPS, 8 PoE/SSD kit barebones unit
TREK-60-720N0E	i7-7600U, 8GB, GPS, SSD kit barebones unit
TREK-60-M1PN0E*	X5-E3940, 4GB, GPS, 8 PoE/SSD kit barebones unit

*Available from October 2020.

Packing List

Part Number	Description	QTY
1750008765-01*	Outdoor FAKRA LTE/GPS (GLONASS) combo antenna, 5 m	1
1750008764-01	Outdoor FAKRA LTE antenna, 5 m	1
1750008763-01	Outdoor FAKRA Wi-Fi antenna, 5 m	2
1700030201-11*	Power cable (100 cm) with 30 cm vehicle I/O	1
1700030180-01	Generic I/O cable, 60 cm	1

* Included in TREK-60 barebones unit.

Embedded OS

Part Number	Description
TBD	OS image Win 10 IoT Enterprise 2019 LTSC 64 bit
TBD	OS image Ubuntu 18.04 LTSB EN 64 bit

Optional Accessories

Part Number	Description
TREK-306D-H2A0E*[1]	10.4" XVGA resistive touch smart display (SDP 2.0)
TREK-303R-H2A0E*[2]	7" WVGA resistive touch smart display (SDP 2.0)
TREK-306P-H2A0E*[2]	10.4" XVGA P-CAP touch smart display (SDP2.0)
1700030182-01	Smart display 2.0 cable, 2 m
1700030183-01	Smart display 2.0 cable, 5 m
1700030181-01	Smart display 2.0 cable, 10 m
1700030387-01	Power cable (20 cm) with 30 cm vehicle I/O (tested in-house)
96PSA-A150W12W7-3	Adapter 100 ~ 240 V, 150W, 12 V, lockable DC jack (tested in-house)

*[1] Available from September 2020.
*[2] Available from January 2021

TREK-60 CTOS Information

Part Number	Description
TREK-60-EXTRF1A0*	RF extension with WIFI/LTE(EU)
TREK-60-EXTRF1B0*	RF extension with WIFI/LTE(US)
TREK-60-EXTRF000*	RF extension barebones unit
98R8T676R00*	WLAN module kit (802.11ac/BT combo), 2 x FAKRA
98R8T676R01*	LTE module kit (US, B2/B4/B5/B13), 2 x FAKRA
98R8T676R02*	LTE module kit (EU, B1/3/7/8/20/28), 2 x FAKRA

*Available from September 2020.

TREK-130

Features

- Image recognition algorithms for front-view monitoring
  - Lane departure warning system (LDWS)
  - Forward collision warning system (FCWS)
- Supports optional video recording board
- Easily display detection through video output
- High dynamic range imaging ensures clear image
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85 °C/-22 ~ 185 °F)
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with TREK x-86 in-vehicle computing terminals (TREK-6xx/5xx/7xx) via a single-cable connection
- Supports firmware updates

Introduction

The TREK-130 is an advanced, multifunction Advanced Driver Assistance System (ADAS) module that combines Front Collision Warning (FCW) and Lane Departure Warning (LDW) algorithms. It is a vision-based active safety solution for accident prevention and injury mitigation using video recognition technologies. This ADAS module can detect surrounding vehicles and pre-alert drivers with audible alerts if a high-risk situation is identified.
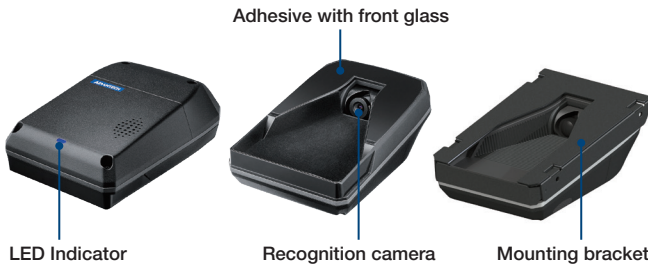
Specifications

Intelligent Video Analysis [1, 2]	Lane Departure Warning System (LDWS)	For LDWS applications, the camera sensor monitors lane markings to detect if the vehicle drifts into another lane. If the system detects that the vehicle has drifted, visual and audio alerts are emitted to warn the driver.
	Forward Collision Warning System (FCWS)	For FCWS applications, the camera sensor processes the images captured by the front camera to detect vehicles ahead and potential collision risks. If a vehicle is detected within a dangerously close proximity, visual and audio alerts are emitted to warn the driver.
Electrical Interface	Camera Sensor	CMOS type, 720p@30fps resolution, 115dB dynamic range; field of view3 (D x H x V): 45/35/26°
	I/O	1 x 4-pin automotive connector (white) for video output 1 x 6-pin automotive connector (grey) for TX/RX and ACC/GND
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	12W typical (input current <1A@ 12 V)
Environment	Operating Temperature	-30 ~ 85 °C (-22 ~ 185 °F)
	Storage Temperature	-40 ~ 105 °C (-40 ~ 221 °F)
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Testing	Twice dropped 1.0 m onto concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB/LVD
Mechanical	Dimensions (W x H x D)	131.3 x 45 x 88 mm (5.16 x 1.77 x 3.46 in)
	Weight	400 g (0.88 lb)

[1] To ensure optimum performance, the system's warning function is only activated when the vehicle speed reaches 60 kmh (37.2 mph).

[2] The module is optimized for vehicles under 1600 mm in height. If the target vehicle exceeds 2000 mm, the module may need to be recalibrated. This service is available upon request.

[3] Because this system is an imaging-based driver assistance system, some conditions and situations may influence the detection accuracy. Please refer to the user manual for further details.

Adhesive with front glass

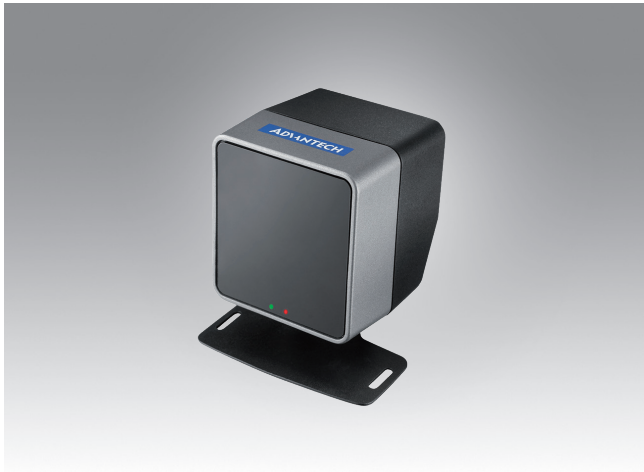LED Indicator   Recognition camera   Mounting bracket

Ordering Information

Part Number	Description
TREK-130-AL01A0E	TREK-130 (Front View Monitoring) with Std. Mount and 2-Meter cables for Low-Height vehicle

Optional Accessories

Part Number	Description
TREK130CALKIT0-ES	ES P/N for TREK-130 Installation and Calibration Kits

Disclaimer
1. Environmental conditions, such as bright lighting or the camera being covered, may trigger false warnings.
2. The presence of dirt or moisture on the camera may impact the recognition capabilities.
3. The TREK-13x series only provides warnings when an object is within the detection area. Additionally, the module does not include an impact breaking function.
4. The TREK-13x series is designed to alert drivers to certain potentially dangerous situations. However, the module cannot replace the functions that drivers would ordinarily perform when driving a vehicle, nor does it reduce the need to remain vigilant and alert at all times, to conform to safe driving standards and practices, and to obey all traffic laws, rules, and regulations.

ADVANTECH

All product specifications are subject to change without notice.   Last updated: 28-Nov-2018

TREK-132

Multifunctional Driver Behavior Recognition Module

Features

- Multifunctional driver behavior recognition algorithms
    - Drowsiness detection
    - Distraction detection
    - Food consumption/smoke detection
    - Phone use detection
- Supports diverse driver characteristics and ethnicities to ensure widespread use
- Two IR LEDs 940nm support detection under poorly lit
- Easily display detection through video output
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85 °C/-22 ~ 185 °F)
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with TREK x-86 in-vehicle computing terminals (TREK-6xx/5xx/7xx) via a single-cable connection
- Supports firmware updates

Introduction

TREK-132 is a vision-based active safety solution for effective collision prevention using image recognition technologies for driver behavior detection. The multifunctional driver behavior recognition algorithm measures changes in drivers' eye and body movement patterns to detect drowsiness and/or distraction, and warn the driver with visual and audio alerts with vehicle computer. Through real-time driver behavior management, this intelligent safety solution can effectively prevent vehicle collisions.

Specifications

Intelligent Video Analysis [1]	Drowsiness Detection	Monitors drivers eye movements and blink frequency. Alerts are emitted if the threshold is exceeded.
	Distraction Detection	1. Drowsy driving. 2. Not paying attention to the road. 3. Cell phone use(by hands). 4. Food consumption.
	Detection Conditions	The distance between driver's face and the camera sensor should be 40 ~ 60 cm. [2] Supports diverse driver characteristics and ethnicities, as well as the wearing of glasses/sunglasses (excluding glasses with specular reflection lenses). Suitable for indoor environments (e.g., low illumination, light refraction).
Electrical Interface	Camera Sensor	CMOS type, 480p@30fps resolution, 74.8dB dynamic range; field of view [3] (D x H x V): 49.2°/39°/29°
	I/O	1 x 8-pin automotive connector (grey) for video-out, TX/RX, and ACC/GND
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	7.2W typical (input current <600 mA @ 12 V)
Environment	Operating Temperature	-30 ~ 85 °C (-22 ~ 185 °F)
	Storage Temperature	-40 ~ 105 °C (-40 ~ 221 °F)
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	IP Rating	N/A
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Testing	Twice dropped 1.0 m onto concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB
Mechanical	Dimensions (W x H x D)	60 x 65 x 58.7 mm/2.36 x 2.55 x 2.31 in (with mount kit: 75 x 81 x 58.7 mm/2.95 x 3.18 x 2.31 in)
	Weight	155 g (0.34 lb)

[1] The system emits a warning when ACC is activated.
[2] Because this system is an imaging-based driver assistance system, some conditions and situations may influence the detection accuracy. Please refer to the user manual for further details.

I/O Port

Disclaimer
1. Environmental conditions, such as bright lighting or the camera being covered, may trigger false warnings.
2. The presence of dirt or moisture on the camera may impact the recognition capabilities.
3. The TREK-13x series only provides warnings when an object is within the detection area. Additionally, the module does not include an impact breaking function.
4. The TREK-13x series is designed to alert drivers to certain potentially dangerous situations. However, the module cannot replace the functions that drivers would ordinarily perform when driving a vehicle, nor does it reduce the need to remain vigilant and alert at all times, to conform to safe driving standards and practices, and to obey all traffic laws, rules, and regulations.

Ordering Information

Part Number	Description
TREK-132-AL01A0E	TREK-132 with Std. Mount and 2-Meter Cable for Low-Height vehicle (Short-focus Lens)

Optional Accessories

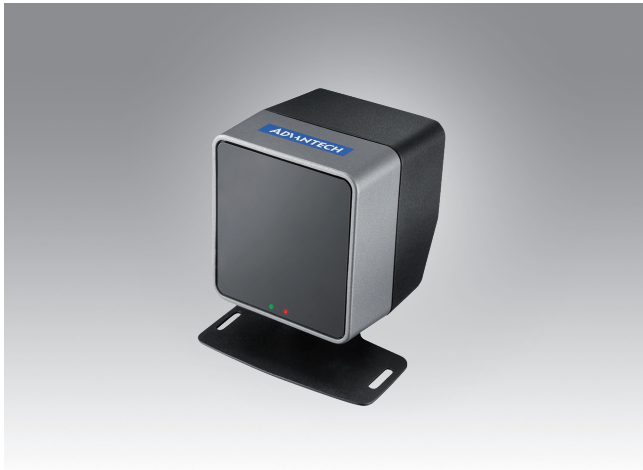| Part Number	Description
TREK-132-EH01A0E	TREK-132 Extended Mounting kit

TREK-132 FL

Long-Range Driver Behavior Recognition Module

Features

- Long-range detection distance (70 ~ 110 cm/27.55 ~ 43.3 in)
- Drowsiness detection
- Distraction detection
- Eating/smoking detection
- Phone use detection
- Supports all ethnicities and sexes
- Supports interior driving environments and both day and night lighting conditions
- Vehicle-grade design (12V/24 vehicle power, wide temperature range, and optimized vibration detection and tolerance)
- Compatible with sunglasses (excluding glasses with specular reflection lenses)
- Sunshine and light refraction does not cause interference

Introduction

TREK-132 FL (facelift) is a driver behavior recognition module that supports a long-range detection distance (70 ~ 110 cm/27.55 ~ 43.3 in) for driver behavior monitoring. The module features recognition technology and algorithms that monitor changes in driver eye and body movement patterns in order to detect drowsiness and distraction. If inappropriate behavior is detected, the module will send alert signals via the COM port to the in-vehicle computer. The in-vehicle computer integrated with third-party software then emits warning notifications to alert the driver and back-end managers. The module also supports video recording and streaming to facilitate subsequent analysis for effective management. By enabling real-time driver behavior management, TREK-132 FL provides an intelligent safety solution for effective accident prevention.

Specifications

Intelligent Video Analysis [1]	Drowsiness Detection	Monitors driver eye movements and blink frequency. Alerts are emitted if the pre-configured threshold is exceeded
	Distraction Detection	1. Drowsiness 2. Lack of attention to the road 3. Cell phone use (via hand) 4. Eating/smoking
	Detection Conditions	The distance between the driver's face and the camera sensor should be 70 ~ 110 cm/27.55 ~ 43.3 in[2] Supports all ethnicities, genders, as well as the wearing of glasses/sunglasses (excluding glasses with specular reflection lenses) Suitable for indoor environments (e.g., low illumination, light refraction)
Electrical Interface	Camera Sensor	CMOS type, 480p@30fps resolution, 74.8dB dynamic range; field of view[3] (D x H x V): 41.2°/32°/26°
	I/O	1 x 8-pin automotive connector (grey) for video-out, TX/RX, and ACC/GND
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	7.2W typical (input current <600 mA @ 12 V)
Environment	Operating Temperature	-30 ~ 80 °C/-22 ~ 176 °F
	Storage Temperature	-40 ~ 85 °C/-40 ~ 185 °F
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	IP Rating	N/A
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
Certification	EMC/Safety	CE, FCC, RCM, VCCI
	Vehicle Regulation	eMARK (E13)
Mechanical	Dimensions (W x H x D)	60 x 65 x 58.7 mm/2.36 x 2.55 x 2.31 in (with mount kit: 75 x 81 x 58.7 mm/2.95 x 3.18 x 2.31 in)
	Weight	155 g/0.34 lb

[1] The system emits a warning when ACC is activated.
[2] Because this is an imaging-based driver behavior recognition system, the detection accuracy may be affected by certain conditions and/or situations. Refer to the user manual for further details.

I/O

Disclaimer

1. Environmental conditions, such as bright lighting or the camera being covered, may trigger false warnings.
2. The presence of dirt or moisture on the camera may impact the recognition capabilities.
3. The TREK-13x series only provides warnings when an object is within the detection area.
4. The TREK-13x series is designed to alert drivers to certain potentially dangerous situations. However, the module cannot replace the functions that drivers would ordinarily perform when driving a vehicle, nor does it reduce the need to remain vigilant and alert at all times, to conform to safe driving standards and practices, and to obey all traffic laws, rules, and regulations.

Ordering Information

Part Number	Description
TREK-132-BL01A0E	TREK-132 FL with 2-meter cable for large vehicles (70 ~110 cm/27.55 ~ 43.3 in detection range), NTSC, RS-232

Optional Accessories

Part Number	Description
TREK-132-AC01A0E	TREK-132 IP66-rated cover

TREK-134

Ultra-Wide (180°) Blind Spot Detection Module

NEW

Features

- 180° ultra-wide detection field
- Real-time visual and audio alarm notifications warn of potential collisions
- Video-based analytics that enable real-time visualization
- AHD 720 high-definition camera
- HDR imaging ensures high-quality clear images
- Camera images/video can be output to a display
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85 °C/-22 ~ 185 °F)
- IP68 rating for protection from water and dust ingress
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with any in-vehicle computing terminal via a single-cable connection

Introduction

The TREK-134 blind spot detection module is an in-vehicle vision-based safety solution that uses image recognition technologies and algorithms as well as real-time visual and audio alarm notifications to warn of potential collisions. Designed for installation in trucks, buses, and heavy-duty vehicle fleets, TREK-134 features an AHD 720 camera with a 180° ultra-wide viewing angle that can detect various moving objects, including pedestrians, cyclists, motorcycles, vehicles, and medium-sized animals. Moreover, the AHD 720 camera supports high dynamic range (HDR) imaging to ensure clear and accurate imaging even in direct sunlight or poorly lit environments.

Specifications

| Intelligent Video Analysis	Object Proximity Detection	Object size: 30 x 30 x 80 cm³
	Detection Angle	≤180°
Electrical Interface	Camera Sensor	CMOS type, 720 p@30 fps resolution, 74.8 dB dynamic range, 170° field of view
	I/O	1 x CVBS output (Male) for video-out, TX/RX, and ACC/GND (open wire)
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	7.2W typical (input current <600 mA@ 12 V)
Environment	Operating Temperature	-30 ~ 85 °C (-22 ~ 185 °F)
	Storage Temperature	-40 ~ 105 °C (-40 ~ 221 °F)
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	IP Rating	IP68
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Tolerance	Up to 1.0 meter on concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB
Mechanical	Dimensions (W x H x D)	40.5 x 28.5 x 38.25 mm (1.59 x 1.12 x 1.5 in)
	Weight	85 g (0.18 lb)
	Protective Cover (Optional)	2-mm stainless steel with coating (106 x 60 x 60 mm/4.25 x 2.36 x 2.36 in)

Note: The TREK-134 module must be paired with vehicle diagnostics data to enable visual and audio alarm notifications.

Dimensions

TREK-134

28.5mm
40.5mm
38.25mm

TREK-134 with protective cover

4-M4x10
70mm
60mm
60mm
106mm
60mm
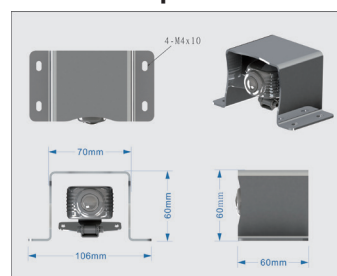
Disclaimer

1. Environmental conditions, such as backgrounds with corrugated or repeating patterns, and obstructions to the camera sensor may trigger false warnings.
2. The presence of dirt or moisture on the camera can affect recognition accuracy.
3. TREK-134 only emits alarm notifications when an object is within the detection area. The module does not provide automated emergency braking functions.
4. TREK-134 only notifies drivers of potential collisions. It does not replace any functions drivers would ordinarily perform when driving, nor does it eliminate the need to remain vigilant and alert at all times, to conform to all safe driving standards and practices, and to obey all traffic regulations.

Ordering Information

Part Number	Description
TREK-134-FL01A0E	TREK-134 (front) module with 2-meter cable
TREK-134-BH01A0E	TREK-134 (rear) module with 2-meter cable
TREK-134-LH01A0E	TREK-134 (left) module with 2-meter cable
TREK-134-RH01A0E	TREK-134 (right) module with 2-meter cable

Optional Accessories

Part Number	Description
TREK-134-CH01A0E	TREK-134 protective cover

ADVANTECH

TREK-303DH

7" In-Vehicle Smart Display

Features

- Vehicle-grade 7" (16:10) WVGA TFT LCD with rugged resistive type touchscreen

- Five user-programmable function keys

- Two 2-watt speakers

- Built-in light sensor for automatic dimming

- Easily installed and paired with TREK computing box via a single-cable connection

- Extended I/O ports (USB 2.0 Type A, power button and reset button) for easy TREK computing box maintenance

- Wide working temperature range (-30° C ~ 70° C)
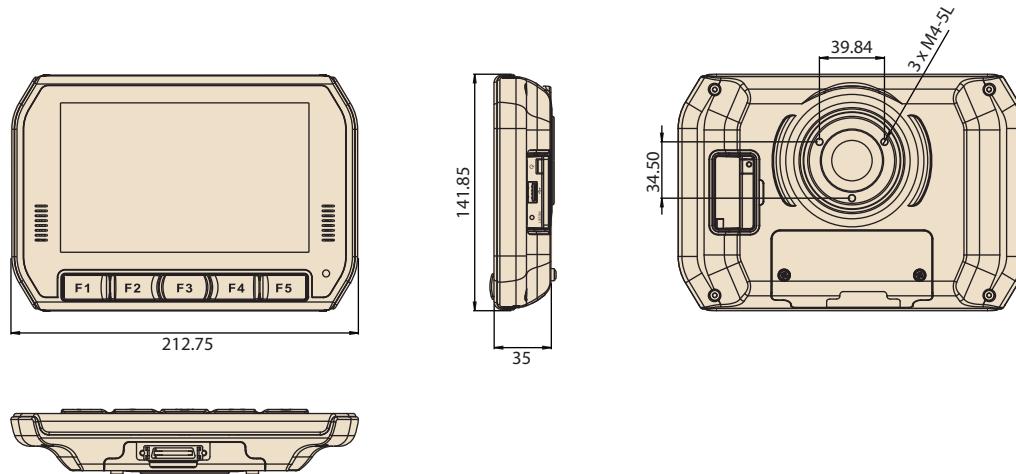
Introduction

The TREK-303DH is a vehicle display system for Mobile Resource Management (MRM) applications in trucks and buses. The TREK-303DH touch panel is ideal for fleet management and dispatch applications. It also meets requirements for automotive grade working temperatures (-30° C ~ 70° C). TREK-303DH provides excellent display capabilities, featuring lightweight housing, it's compatible with RAM mounting solutions that customers can easily install. TREK-303DH supports resolutions of 800 x 480; it is compatible with TREK box solutions connecting via a single cable. TREK-303DH is designed with drivers in mind: when the system requires powering up or waking up, it can be easily controlled from the button located on the side; and for night driving, the panel has an auto detecting light sensor to automatically adjust brightness.
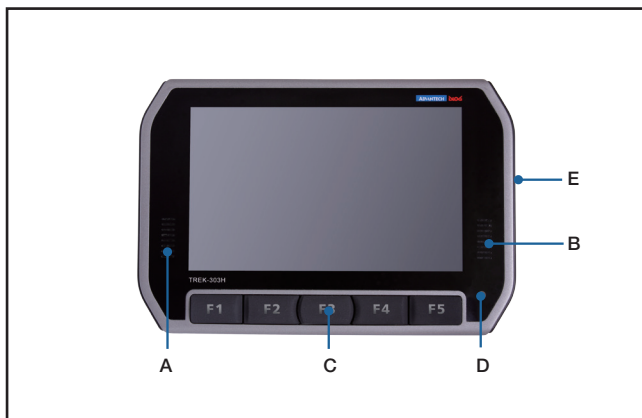
Specifications

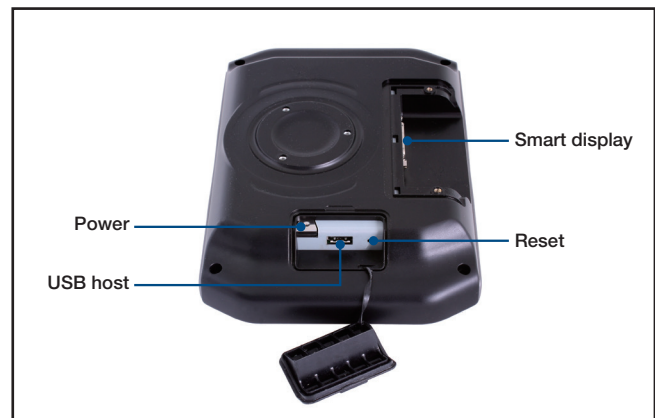|		
LCD	Design Compatible Models	Paired with TREK computing box (i.e. TREK-5xx/6xx)
	Resolution (pixel)	WVGA (800 x 480)
	Video Interface	Single channel, 18 bit LVDS
	Pixel Pitch	0.2168 (H) x 0.2168 (V)
	Brightness (cd/m²)	500 (typical)
	View Angle ((H/V))	140° /120°
	Contrast Ratio	500
	Backlight Type	LED
	Backlight Life (Hrs)	50K
Touchscreen	Size	7.11" format
	Type	4-wire Resistive
	Transparency	81% ± 3%
	Hardness	3H
	Durability	Knock test > 200,000 times (Stylus= R0.8,<=250g)
	IK Shock-Protection Rate	IK-07 (by project-based)
Front Panel	Speaker	2 x 2-watt speaker
	Hotkeys	5 x User-programmable Function key with green LED
	Brightness Control	1 x Built-in light sensor for auto-dimming implementation
Rear I/O	Smart Display Port	1 x 36-pin locking type high density connector to be paired with TREK-5xx/6xx
Right Side I/O	USB Port	1 x USB 2.0 Host Type A (Data access from/to TREK computing box)
	Power button	1 x Power button (To power on/off TREK computing box)
	Reset button	1 x Reset button (To Reset TREK computing box)
Power	DC Input	12 V ± 5% (Powered by TREK computing box directly)
	Power Consumption	7W (Nominal), 12W (Max.)
Mechanical	Mounting	RAM mount
	Material	PC
	Weight	0.67 kg
	Dimensions (W x H x D)	212.75 x 141.85 x 35 mm
Environment	Operating Temperature	-30° C ~ 70° C
	Storage Temperature	-40° C ~ 80° C
	Vibration	MIL-STD-810G, SAE J1455 4.9.4.2
	Certifications	CE, FCC, CCC
	IP Rating	IP31 (entire system), IP 54 (with I/O Cover)

Dimensions

Unit: mm

39.84

3 x M4-5L

141.85

34.50

212.75

35

I/O Connectors

E

B

A

C

D

TREK-303H

Smart display

Power

Reset

USB host

A. B. Speaker
C. User-defined hotkeys

D. Light sensor
E. Reset, power, USB host (side)

Ordering Information

Part Number	Description
TREK-303D-HA0E	7" WVGA in-vehicle Smart Display, with 4-wire Resistive Touchscreen without Bezel

Optional Items

Part Number	Description
RAM-MOUNT-06E	VESA RAM mount w/VESA base(3.625") & 5.625" double socket arm for 1.5" ball base
RAM-MOUNT-07E	5.625" double socket arm for 1.5" ball base
1700020007	2-meter smart display cable (Paired with TREK-5xx/6xx)
1700020008	5-meter smart display cable (Paired with TREK-5xx/6xx)

TREK-306DH

10" In-Vehicle Smart Display

Features

- Vehicle-grade 10" (4:3) XGA TFT LCD with rugged resistive type touchscreen
- Five user-programmable function keys
- Two 2-watt speakers
- Built-in light sensor for automatic dimming
- Easily installed and paired with TREK computing box via a single-cable connection
- Extended I/O ports (USB 2.0 Type A, power button and reset button) for easy TREK computing box maintenance
- Wide working temperature range (-30° C ~ 70° C)
- Optional monitor hood supports operation in direct sunlight for demanding environments
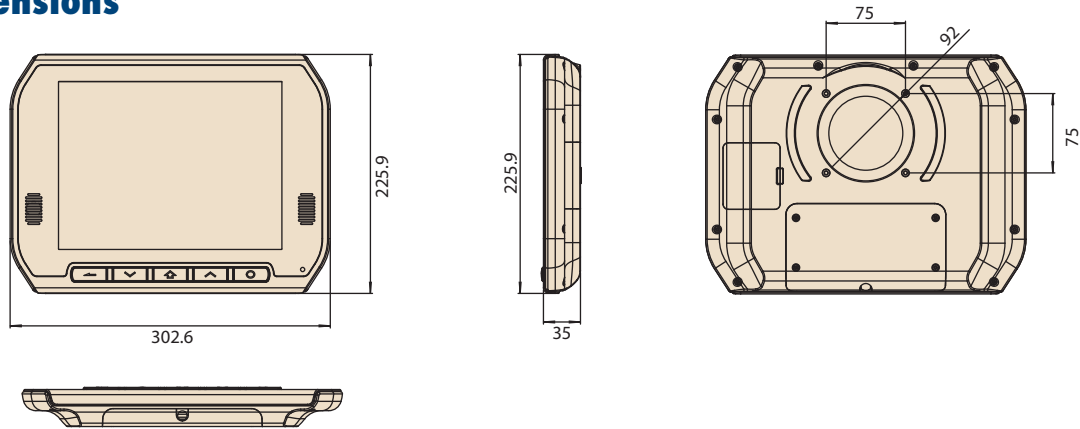
Introduction

The TREK-306DH is a vehicle display system for Mobile Resource Management (MRM) applications in trucks and buses. The TREK-306DH touch panel is ideal for fleet management and dispatch applications. It also meets requirements for automotive grade working temperatures (-30° C ~ 70° C). TREK-306DH provides excellent display capabilities, featuring lightweight housing, it's compatible with RAM mounting solutions that customers can easily install. TREK-306DH supports resolutions of 1024 x 768; it is compatible with TREK box solutions connecting via a single cable. TREK-306DH is designed with drivers in mind: when the system requires powering up or waking up, it can be easily controlled from the button located on the side; and for night driving, the panel has an auto detecting light sensor to automatically adjust brightness.
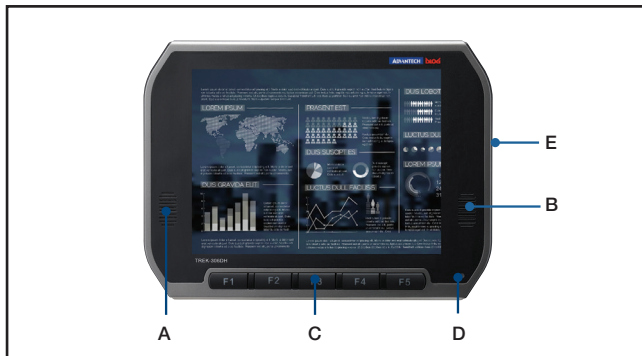
Specifications

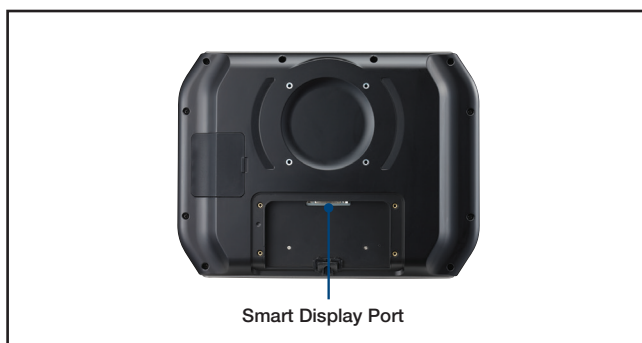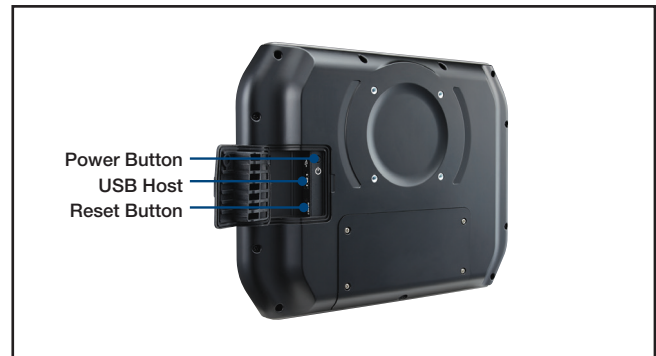|		
LCD	Design Compatible Models	Paired with TREK computing box (i.e. TREK-5xx/6xx, TREK-520 by project-based)
	Resolution (pixel)	XGA (1024 x 768)
	Video Interface	Single channel, 18 bit LVDS
	Pixel Pitch	0.2055 (H) x 0.2055 (V)
	Brightness (cd/m²)	400 (typical)
	View Angle ((H/V))	178°/178°
	Contrast Ratio	1400
	Backlight Type	LED
	Backlight Life (Hrs)	50K
Touchscreen	Size	10.4" (4:3) format
	Type	5-wire Resistive
	Transparency	80% ± 3%
	Hardness	3H
	Durability	Knock test > 35,000,000 times (Stylus= R0.8,<=50g)
	IK Shock-Protection Rate	IK-06 (Resistance against impacts with an energy up to 1,00 J)
Front Panel	Speaker	2 x 2-watt speaker
	Hotkeys	5 x User-programmable Function key with green LED
	Brightness Control	1 x Built-in light sensor for auto-dimming implementation
Rear I/O	Smart Display Port	1 x 36-pin locking type high density connector to be paired with TREK-5xx/6xx
Right Side I/O	USB Port	1 x USB 2.0 Host Type A (Data access from/to TREK computing box)
	Power button	1 x Power button (To power on/off TREK computing box)
	Reset button	1 x Reset button (To Reset TREK computing box)
Power	DC Input	12 V ± 5% (Powered by TREK computing box directly)
	Power Consumption	8W (Nominal), 14W (Max.)
Mechanical	Mounting	VESA (75 x 75 mm), RAM Mount
	Material	PC
	Weight	1.7 kg
	Dimensions (W x H x D)	303 x 226 x 35 mm
Environment	Operating Temperature	-30° C ~ 70° C
	Storage Temperature	-40° C ~ 80° C
	Vibration	MIL-STD-810G, SAE J1455 4.9.4.2
	Certifications	CE, FCC
	IP Rating	IP55 (with I/O Cover)

Dimensions

Unit: mm

75

92

225.9

225.9

75

302.6

35

I/O Connectors

E

B

A

C

D

Power Button
USB Host
Reset Button

A. B. Speaker
C. User-defined hotkeys

D. Light sensor
E. Reset, power, USB host (side)

Smart Display Port

Monitor Hood

Ordering Information

Part Number	Description
TREK-306D-HA0E	10.4" XVGA in-vehicle Smart Display, with 5-wire Resistive Touchscreen

Optional Items

Part Number	Description
RAM-MOUNT-06E	VESA RAM mount w/VESA base(3.625") & 5.625" double socket arm for 1.5" ball base
RAM-MOUNT-07E	5.625" double socket arm for 1.5" ball base
1700020007	2-meter smart display cable (Paired with TREK-5xx/6xx)
1700020008	5-meter smart display cable (Paired with TREK-5xx/6xx)
TREK-306-HOOD01E	Monitor hood for TREK-306DH
1700020007-11	2M Smart display cable with iron screw
1700020008-21	5M Smart display cable with iron screw

TREK-674

Compact In-Vehicle Computing Box for Fleet Management and Surveillance

TAIWAN EXCELLENCE 2015

Features

- Vehicle diagnostics interface with configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Embedded Stretch S7 video encoder supports up to 8 analog video inputs and 4 audio inputs
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules
- Intelligent vehicle power management system supports ignition on/off/delay functions, wake-up event control, and system health monitoring and diagnostics
- Accessible external SSD tray with key-lock protection
- Wide operating temperature range (-30 ~ 70 °C/-22 ~ 158 °F)
- Supports 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance
- Easily paired with TREK in-vehicle smart displays (TREK-303/306) via a single-cable connection

Introduction

TREK-674 is a compact vehicle-grade, dual-core computing box designed to provide high-quality video surveillance and fleet management for police, ambulance, fire engine, and bus fleets. The inclusion of GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules allows remote monitoring and vehicle tracking even in tunnels. TREK-674 also features several vehicle protocols (J1939, OBD-II/ISO 15765) for vehicle diagnostics and driver behavior management, and supports up to 8 channel camera inputs for high-quality H.264 D1/30fps/ch recording. The USB 3.0 port, dual SIM card sockets, and Cfast slots are front-facing to ensure ease of maintenance. Meanwhile an external swappable SSD tray is provided for video data backups.

Specifications

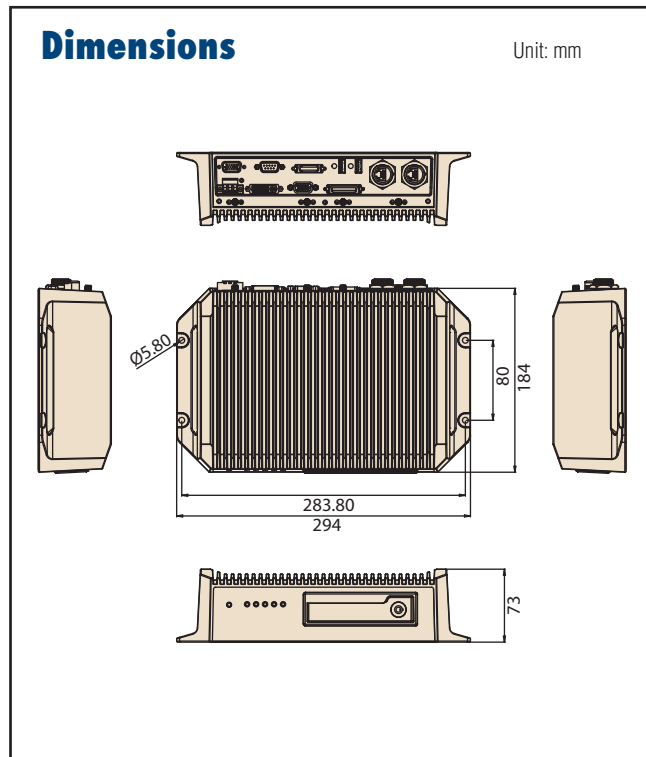|		
Core	Processor	Intel® Atom™ E3827 (dual core, 1.75 GHz)
	Memory	1 x SODIMM socket Up to 8 GB DDR3L-1066/1333 non-ECC memory (2 GB default)
	Graphics	Integrated 2D/3D graphics engine
	Video HW Encoder	Stretch S7 with H.264 MJPEG support; up to D1 resolution (30fps) per channel
	Operating System	WES7, Win10 IoT LTSB (32 bit), WES8, and Linux Ubuntu 14.04 Kernel 3.19.0 (32 bit) upon request
Storage	CFast	1 x externally accessible CFast slot with cover and supports system boot up 16 GB, UMLC SQFlash Cfast (default)
	SSD	1 x externally accessible 2.5" SSD tray with key-lock protection, supports system boot up 64 GB, UMLC SQFlash SSD (default)
Display	Smart Display Port [1]	12V/2A power output for TREK-30x 1 x 18-bit LVDS (800 x 480/1024 x 768 resolution with auto-detection) 1 x Line-Out2 (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, brightness, and light sensor control) 1 x USB 2.0 Type A 1 x PWR button 1 x Reset button
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
I/O	Vehicle I/O	2 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; configurable via firmware) 1 x J1708 (supports J1587)
	Generic I/O	1 x RS-485 with auto flow control 1 x 4-wire RS-232 4 x Isolated DI (dry contact) 2 x Isolated DO (open collector output, driven by relay) 1 x Line-Out [2] 1 x Mic-In
	Standard I/O	1 x USB 3.0 Type A (front) 2 x USB 2.0 Type A (rear, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12/5 V @0.5A is BOM optional via jumper setting) 2 x Giga LAN, with locked-type RJ45 connector
RF	Video/Audio Input (Via DVI-I Connector)	8 x Video inputs with video compression, H.264, MJPEG support, and up to D1 resolution (30fps) per channel 4 x Audio inputs with G.711 audio compression
	LED Indicators	5 x LEDs: Power (red), Storage (yellow), WLAN (green), WWAN (green), and GPS (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system power on by ignition as default
	Reset Button	1 x Reset button (front)
	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth V4.0 combo module via full-size mini PCIE slot (Optional high-power WLAN/WLAN for roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT): Sierra Wireless MC73xx via full-size mini-PCIe slot (MC7354 for US/MC7304 for EU as default) 2 x external accessible mini-SIM card sockets (selectable) with cover
	GNSS	Built-in u-blox MAX-M8W GPS/GLONASS/BeiDou module with A-GPS support (Optional LEA-6R or Neo-M8L (dead reckoning) available upon request)
	Antenna	4 x SMA-type antenna holes for GPS, Wi-Fi+BT, WWAN/LTE MIMO [3]
Power	Voltage input	Supports 12/24 V vehicle power, 9 ~ 32 V$_{DC}$ input (ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off/delay) Supports wake-up events: wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor System power protection (vehicle battery low voltage protection) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	294 x 73 x 184 mm (11.57 x 2.87 x 7.24 in)
	Weight	3.5 kg (7.71 lb)

[1] For direct pairing with TREK-303/306 via a single-cable connection
[2] Supports dual independent audio streams (the Line-Out interfaces of the smart display and generic I/O are driven by different audio codecs)
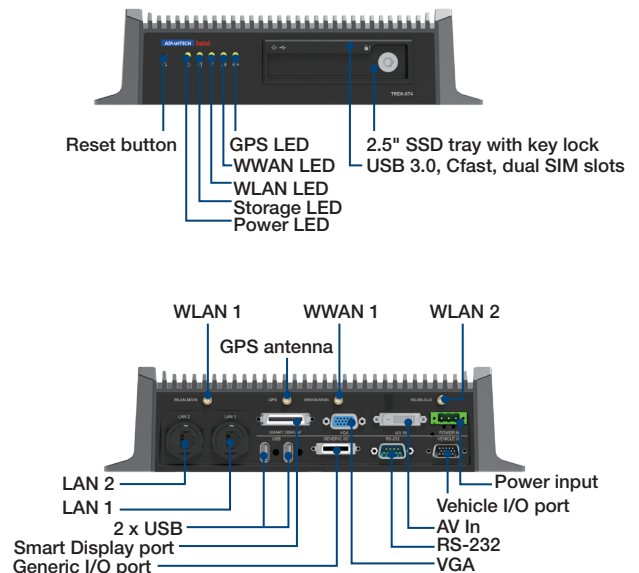[3] The TREK-674 connector type is female RP-SMA (e.g., a female connector body (outside threads) with a male inner pin contact)

Specifications Cont.

Environment	IP Rating	IP30
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC, CCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455, ISO 7637-2, SAE J1113
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30 ~ 70 °C (-22 ~ 158 °F)
	Storage Temperature	-40 ~ 80 °C (-40 ~ 176 °F)

Dimensions
Unit: mm

I/O Connectors

Reset button · GPS LED · WWAN LED · WLAN LED · Storage LED · Power LED · 2.5" SSD tray with key lock · USB 3.0, Cfast, dual SIM slots

WLAN 1 · GPS antenna · WWAN 1 · WLAN 2
LAN 2 · LAN 1 · 2 x USB · Smart Display port · Generic I/O port · Power input · Vehicle I/O port · AV In · RS-232 · VGA

Note: WLAN 1 = WLAN main, WLAN 2 = WLAN auxiliary, WWAN 1 = WWAN main

Ordering Information

Part Number	Description
TREK-674-LWB7A0E	TREK-674 w/LTE(EU)/GPS/WLAN/BT/SSD/WES7
TREK-674-LWB7B0E	TREK-674 w/LTE(US)/GPS/WLAN/BT/SSD/WES7

Note: WES8, Win10 IoT LTSB and Linux OS images are available upon request.

Packing List

Part Number	Description
1700019031	1 x 2M power cable
1700023050-11	1 x generic I/O cable, 2M
1700023051-01	1 x vehicle I/O cable, 30 cm
1700022702-01	1 x Audio/Video cable, 20 cm
1654011716-01	2 x waterproof RJ45 locking kit
1750007724-01	1 x 3-in-1 antenna (LTE/GPS/Wi-Fi), 3M
1750007723-01	1 x Wi-Fi only antenna, 3M
1990018848T000	2 x USB cable clips

Optional Accessories

Part Number	Description
TREK-303R-HA0E	7" WVGA in-vehicle smart display
TREK-306D-HA0E	10" WVGA in-vehicle smart display
1700020007-11	2M smart display cable
1700020008	5M smart display cable
1700020128	5M power cable
1700019464	Power cable, 155 mm (for in-house testing)
96PSA-A60W12V1-1	Adapter AC 100 ~ 240 V, 60 W, 12 V 5A w/o PFC (for in-house testing)

TREK-688

Premium In-Vehicle Computing Box for Fleet Management and Surveillance

Features

- 4th generation Intel® Core™ processor
- Vehicle diagnostics interface with configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Embedded Stretch S7 video encoder supports up to 16 analog video inputs and 8 audio inputs
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules
- Intelligent vehicle power management system supports ignition on/off/delay and power protection functions
- Dual externally accessible HDD/SSD tray with key-lock protection
- Wide operating temperature range (-30 ~ 55 °C/-22 ~ 131 °F)
- Supports 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance
- Easily paired with TREK in-vehicle smart displays (TREK-303/306) via a single-cable connection
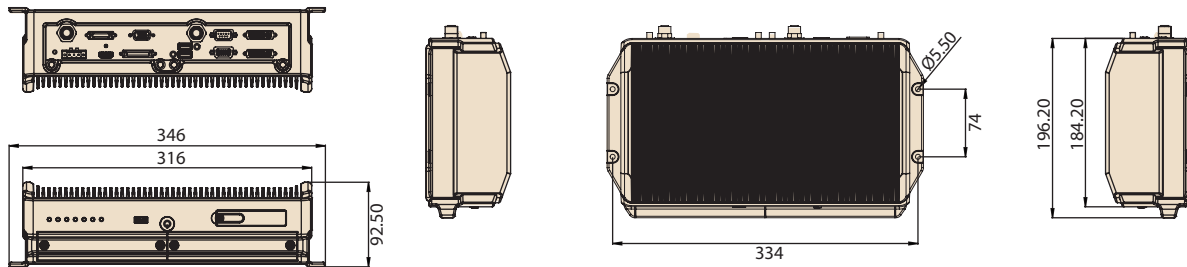
Introduction

TREK-688 is an industrial-grade in-vehicle computing box designed to provide high-quality fleet management and video surveillance for eBus and BRT systems. The inclusion of GNSS, WLAN, Bluetooth, GPS, and WWAN (with dual SIM cards) modules allows remote monitoring and vehicle tracking even in tunnels. TREK-688 also features several vehicle protocols (J1939, OBD-II/ISO 15765) for vehicle diagnostics and driver behavior management, and supports up to 16 camera inputs and 8 audio inputs for high-quality, MJPEG, H.264 recording to enable motion detection, on-board recording, and real-time data transmissions. The dual Gigabit Ethernet ports with M12 connectors and dual display/dual audio interfaces support different resolutions for convenient application.

Specifications

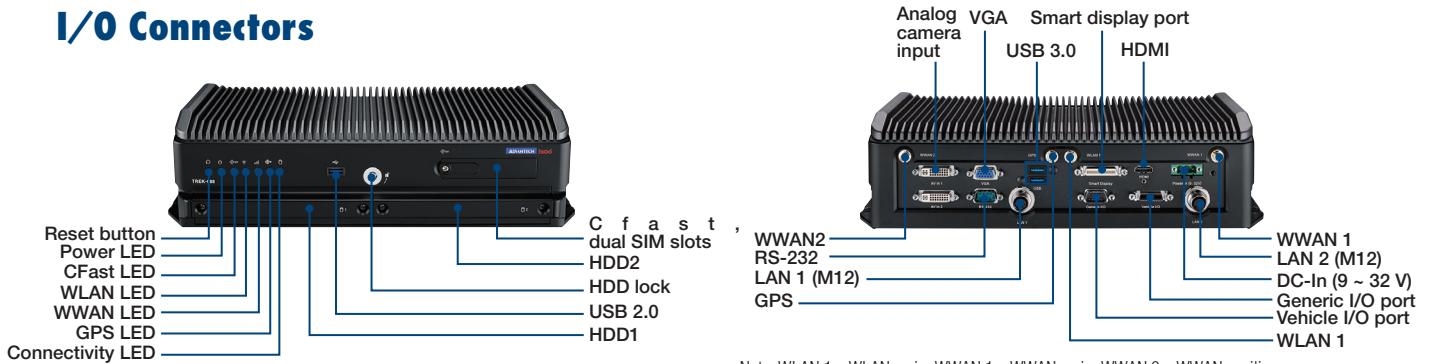|		
Core	Processor	Intel® Core™ i7-4650U dual-core, 2.9 GHz (i3-4010U and i5-4300U available upon request)
	Memory	1 x SODIMM socket Up to 8 GB DDR3L-1066/1333 non-ECC memory (4 GB default)
	Graphic	Intel® HD graphics 4400, 1.1 GHz
	Video HW Encoder	Stretch S7 with H.264 MJPEG support; up to D1 resolution (30fps) per channel
	Operating System	Win7 Pro (32 bit) default with WES8, Win10 IoT LTSB, and Linux Ubuntu 14.04 (Kernel 4.2.0) available upon request
Storage	CFast	1 x externally accessible CFast slot with cover and supports system boot up 16 GB, UMLC SQFlash Cfast (default)
	mSATA	1 x mSATA slot that supports system boot up with optional BOM upon request
	HDD/SSD	2 x externally accessible 2.5" mobile HDD/SSD trays with key-lock protection with optional support for system boot up Supports SATA III (6 Gbz/s)
Display	Smart Display Port [1]	12V/2A power output for TREK-30x 1 x 18-bit LVDS (800 x 480 resolution for TREK-303 or 1024 x 768 for TREK-306); configured for TREK-306 as default 1 x Line-Out[2] (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, brightness, and light sensor control) 1 x USB 2.0 Type A 1 x PWR button 1 x Reset button
	HDMI	1 x HDMI 1.4a (up to 3200 x 2000 resolution @ 60 Hz)
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
I/O	Vehicle I/O	2 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; configurable via firmware) 1 x J1708 (supports J1587) 1 x 4-wire RS-232/422/485 (RS-485 default, configurable via software)
	Generic I/O	2 x 4-wire RS-232 4 x Isolated DI (dry contact) 4 x Isolated DO (open collector output, driven by relay) 1 x Line-Out[2] 1 x Mic-In
	Standard I/O	1 x USB 2.0 Type A (front) 2 x USB 3.0 Type A (rear, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12 V @ 0.5A is BOM optional via jumper setting) 2 x Giga LAN with 8-pin M12 connector
	Video/Audio Input (AV1 and AV2 via dual DVI-I connector)	16 x Video inputs with video compression, H.264, MJPEG support, and up to D1 resolution (30fps) per channel (480fps total) 8 x mono audio inputs with G.711 audio compression
	LED	6 x LEDs: Power (red), CFast (yellow), WLAN (green), WWAN (green), GPS (yellow), and connectivity (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system power on by ignition as default
	Reset Button	1 x Reset button (front)
RF	WLAN + Bluetooth	6 x LEDs: Power (red), Storage (yellow), WLAN (green), WWAN (green), and GPS (yellow)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT): Sierra Wireless MC73xx via full-size mini-PCIe slot (MC7354 for US/MC7304 for EU as default)
	GNSS	Built-in ublox MAX-M8W GPS/GLONASS/BeiDou module with A-GPS support 2 x externally accessible mini SIM card sockets (selectable) with cover
	Antenna	4 x SMA-type antenna holes for GPS, Wi-Fi+BT, WWAN/LTE MIMO[3]
Power	Input Voltage	Supports 12/24 V vehicle power, 9 ~ 32 VDC input (ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off/delay) Supports wake-up events: wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor System power protection (vehicle battery low voltage protection) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	346 x 92.5 x 196.2 mm (13.62 x 3.64 x 7.72 in)
	Weight	5.9 kg (13 lb) with two HDDs

Dimensions

Unit: mm

Specifications Cont.

Environment	IP Rating	IP30
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455, ISO 7637-2, SAE J1113
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30 ~ 55 °C (-22 ~ 131 °F)
	Storage Temperature	-40 ~ 80 °C (-40 ~ 176 °F)

[1] For direct pairing with TREK-303/306 via a single-cable connection
[2] Supports dual independent audio streams (the Line-Out interfaces of the smart display and generic I/O are driven by different audio codecs)
[3] The TREK-688 connector type is female RP-SMA (e.g., a female connector body (outside threads) with a male inner pin contact)

I/O Connectors

Reset button
Power LED
CFast LED
WLAN LED
WWAN LED
GPS LED
Connectivity LED

Cfast, dual SIM slots
HDD2
HDD lock
USB 2.0
HDD1

Analog camera input
VGA
USB 3.0
Smart display port
HDMI

WWAN2
RS-232
LAN 1 (M12)
GPS

WWAN 1
LAN 2 (M12)
DC-In (9 ~ 32 V)
Generic I/O port
Vehicle I/O port
WLAN 1

Note: WLAN 1 = WLAN main, WWAN 1 = WWAN main, WWAN 2 = WWAN auxiliary

Ordering Information

Part Number	Description
TREK-688-7LWB7PA0E	i7-4650U/LTE/HSPA+(EU)/GPS/WLAN/BT/Win7 Pro (32 bit)
TREK-688-7LWB7PB0E	i7-4650U/LTE/HSPA+(US)/GPS/WLAN/BT/Win7 Pro (32 bit)
TREK-688-01A0E	i5-4300U/4G RAM/GPS, barebone unit
TREK-688-02A0E	i7-4650U/8G RAM/GPS, barebone unit

Note: WES8, Win10 IoT LTSB, and Linux OS images are available upon request.

Packing List

Part Number	Description
1700019031	1 x 2M power cable
1700023050-11	1 x generic I/O cable, 2M
1700023051-01	1 x vehicle I/O cable, 30 cm
170022702-01	2 x audio/video cables, 20cm
1700020123	1 x USB cable for HDD data backups
1750007927-01	1 x LTE/GPS outdoor combo antenna, 3M
1750007928-01	1 x LTE outdoor antenna, 4M
1750007564-11	1 x Wi-Fi only antenna, 3M

Note: The TREK-688 barebone units (e.g., TREK-688-01A0E/TREK-688-02A0E) are without LTE and Wi-Fi antennas.

Optional Accessories

Part Number	Description
TREK-303R-HA0E	7" WVGA in-vehicle smart display
TREK-306D-HA0E	10" WVGA in-vehicle smart display
1700020007-11	2M smart display cable
1700020008	5M smart display cable
1700020128	5M power cable
1700020170-01	M12 to RJ45 waterproof LAN cable, 50 mm (for in-house testing)
1700019464	Power cable, 155 mm (for in-house testing)
96PSA-A60W12V1-1	Adapter AC 100 ~ 240 V, 60 W, 12 V 5A w/o PFC (for in-house testing)