

TREK-60

Rugged In-Vehicle Edge AI Platform with 8 Channel PoE for In-Vehicle & Harsh Environments



Features

- 8ch PoE & Best Fit I/Os
- In-vehicle specialized: 12V/24V certified car power (E-Mark, ISO-7637-2), dual CANbus
- IP65, 5M3 shock and vibration tolerance, -30 ~ 70 °C wide temperature w/o airflow
- Modular design supports the latest RF communication technologies
- ONE cable connection with TREK displays
- Multiple AI accelerator options: Intel® OpenVINO™, Google Coral, Hailo for edge AI computing

DeviceOn/iService

Introduction

Aimed at Fleet Management and Heavy Duty Machinery applications, TREK-60 features a Intel® Core™ i7/i5/Atom™ 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.

Moreover, TREK-60 is equipped with Advantech's DeviceOn/iService software, which is a next-generation unified device management solution based on the WISE-DeviceOn platform. With support for batch operations and multi-device control, DeviceOn/iService enables easy device configuration and deployment for convenient remote device management.

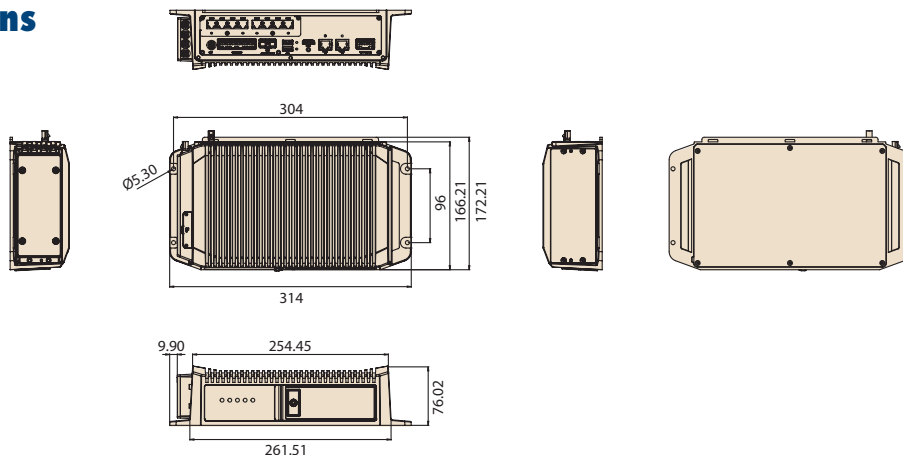
Specifications

Core	Processor	Intel® Atom™ x7433RE quad-core, 3.4 GHz	Intel® Core™ i7-1365URE multi-core, 4.9 GHz Intel® Core™ i5-1345URE multi-core, 4.6 GHz
	Memory	1 x SODIMM, up to 16GB	2 x SODIMM, up to 64GB DDR5
	Graphics	Integrated 2D/3D graphics engine	
	Operating System	Windows 11 IoT Enterprise LTSC (64 bit), Linux 24.04 LTS	
Storage	mSATA/NVMe/SATA	1x SATA M.2 M-key 2242, up to 1TB	Default: 1x M.2 M-key 2242 NVMe, up to 2TB
	SSD	1 x externally accessible 2.5" SSD tray with key-lock protection	
Display	Smart Display Port 2.0*	12V/2A power output for TREK displays 1 x high-resolution video, 1 x audio signal, 1 x USB 2.0 1 x power button and 1 x reset button (via the smart display) (the SDP settings are configurable via SDK)	
	HDMI	1x HDMI 2.0	
Sensors	1 x G-sensor and gyroscope		
Expansion	Edge AI	1 x M.2 E-key 2230 (PCIe Gen3 x1 lane+USB2.0)	
I/O	VIO2.0 (via VIO cable)	1 x ignition and power input 1 x J1708 (supports J1587) 2 x CAN bus (CANFD compliant by Core i 13th version); compliant with J1939, OBD-II/ISO-15765 specifications; supports both 11-bit (CAN 2.0A) and 29-bit (CAN 2.0B) identifiers; high-speed CAN connection (compliant with ISO 11898-2), up to 1 Mbit/s; configurable via SDK	
	Generic I/O 2.0 (via generic I/O cable)	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	1x USB 2.0 Type A (Front) 2x USB 3.2 Type A (Rear) 2x Giga LAN (with optional locking mechanism, or M12 connector)	
	LED Indicators	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 accessible with key-lock protection)	
	Reset Button	1 x Reset button (front accessible with key-lock protection)	
	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 ¹ Supports PoE power control and Ethernet management ¹ (via SDK)

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

Dimensions

Unit: mm



Specifications Cont.

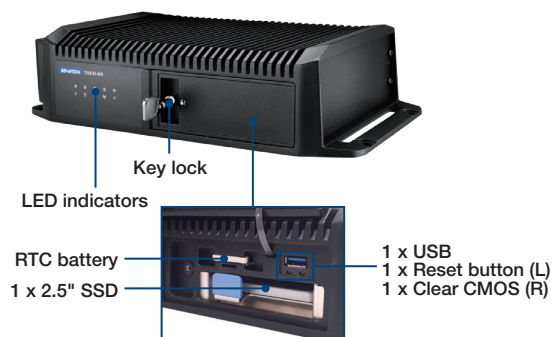
Expansion ² (via I/O extension)	V2X	1 x full-size mini PCIe (USB2.0) for V2X module
	Capture Card	2 x full-size mini PCIe (PCIe 2.0) for 8ch TVI video capture card
RF (WLAN/WWAN via RF extension)	WLAN/Bluetooth	1 x full-size mini PCIe (PCIe/USB 2.0) for 802.11a/b/g/n/ac Wi-Fi 5 + Bluetooth V5.0 combo module; optional high-power Wi-Fi module 1 x M.2 2230 (A+E Key) for 802.11a/b/g/n/ac/ax Wi-Fi 6 + Bluetooth V5.0 combo module
	WWAN	1 x full-size mini PCIe (USB 2.0) for 4G module (LTE Cat-4, HSPA+, GSM/GPRS/EDGE) 1 x externally accessible mini SIM card socket with cover, 1 x embedded SIM (available upon request) 1 x M.2 3042/3052 (B key, USB 3.0) for 4G/5G module
	GNSS	Built-in u-blox NEO-M9L (DR available)
	Antenna	5 x FAKRA connectors for 1 x GPS (C-code), 2 x Wi-Fi + Bluetooth (I/Z-code), 2 x WWAN/LTE(D/L-code) with Wi-Fi/WWAN MIMO support
Power Supply	Voltage Input	12/24 V vehicle power (9 ~ 32 V _{DC} input) (ISO 7637-2 and SAE J1113 compliant) System power on/off/hibernate management (programmable ignition on/off/delay) PoE power total/on/off management (via SDK) 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
	Intelligent Vehicle Power Management (iVPM 2.0)	
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 rating (excluding rear I/O); an optional IP65-rated M12 system I/O cover is available upon request
	Vibration/Shock	MIL-STD-810G, EN60721-3 (5M3)
	EMC	CE, FCC, RCM, CCC
	Safety	UL/cUL, CB, CCC
	Vehicle Regulation	ECE R10, ECE R118, ITxPT, ISO 7637-2, SAE J1113 compliant
	RF Regulation	CE (RED), FCC ID, IC ID
	Operating Temperature	-30 ~ 70 °C/-22 ~ 158 °F (Atom™ x7433RE) w/o airflow; -35 ~ 50 °C/-4 ~ 122 °F (Core™ i7/i5) (-35 ~ 60 °C/-4 ~ 140 °F available upon request) ^{2,3} w/o airflow
Storage Temperature	-40 ~ 80 °C/-40 ~ 176 °F	
DeviceOn iService	Compatible with DeviceOn iService remote device management, supporting but not limited to the following features: OTA software installation, remote SSH, device anomaly monitoring, and device control	

¹ TREK-60 in-vehicle platform with Intel® Core™ i7-1365URE + POE 60W already reaches its maximum power consumption at 50°C. PoE power consumption depends on the system configuration and usage scenarios.

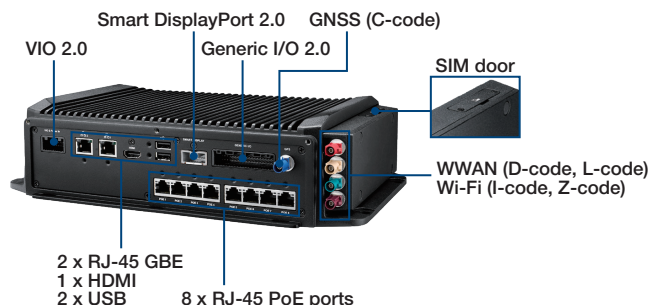
² This product is qualified for operation from -35°C to 75°C (Atom™ X7433RE)/ -40°C to 55°C (Core™ i7/i5) as 5°C Guard Band. The product also pass test for ±10°C thermal shock.

³ The TREK-60 platform with Intel® Core™ i7-1365URE was tested under real-world vehicle conditions on a metal frame. Testing results show a maximum power consumption of 100W at an ambient temperature of 50°C, and 45W at 60°C.

Easy-Access Front Door



Flexible Rear I/O



Ordering Information

Part Number	Description
TREK-60-U5GP2A0E	Ci5-1345URE/16/128GB/GPS/PoE/Win11/VIO/GPS<E Ant
TREK-60-U5GPUA0E	Ci5-1345URE/16/128GB/GPS/PoE/ubuntu/VIO/GPS<E Ant
TREK-60-U7GP2A0E	Ci7-1365URE/16/128GB/GPS/PoE/Win11/VIO/GPS<E Ant
TREK-60-U7GPUA0E	Ci7-1365URE/16/128GB/GPS/PoE/ubuntu/VIO/GPS<E Ant
TREK-60-ADP2A0E	X7433RE/8GB/128GB/GPS/Win11/VIO
TREK-60-ADPUA0E	X7433RE/8GB/128GB/GPS/ubuntu/VIO
TREK-60-AGP2A0E	X7433RE/16GB/128GB/GPS/Win11/VIO
TREK-60-AGPUA0E	X7433RE/16GB/128GB/GPS/ubuntu/VIO

Packing List

Part Number	Description	QTY
1700030201-21	VIO cable, supports power cable (100cm) and 2 x CAN/J1708 cable (30 cm)	1
1750008765-01	Outdoor FAKRA LTE/GPS (GLONASS) combo antenna, 5 m	1

Optional Accessories

Part Number	Description
TREK-303R-H2A0E	7" WVGA resistive touch smart display (SDP 2.0)
TREK-306P-H2A0E	10.4" XVGA P-CAP touch smart display (SDP2.0)
1700030181-01	Smart display 2.0 cable, 10 m
1700030183-01	Smart display 2.0 cable, 5 m
RAM-MOUNT-06E	VESA RAM mount w/VESA base (3.625") & 5.625" double socket arm for 1.5" ball base
1700030387-11	Power cable (20 cm) with 30 cm vehicle I/O (use with adapter)
96PSA-A150W12W7-4	ADP A/D 100-240V 150W 12V LOCKABLE DC JACK (indoor use with AC power adapter)
1700030180-11*	Generic I/O cable, supports RS-232/Line-Out/Line-In/DI/DO (60 cm)
1750008764-01*	Outdoor FAKRA LTE antenna, 5 m
1751000818-01	External Ant. WIFI FAKRA-I/F LLC195 BLK L5M IP67

*The actual accessories are subject to the order model

RF Extension

Part Number	Description
TREK-60-EXTRF1A0	RF extension for Wi-Fi/LTE, 4 x FAKRA connectors (EU)
TREK-60-EXTRF1C0	RF extension for Wi-Fi/LTE, 4 x FAKRA connectors (AU)

IO Extension

Part Number	Description
TREK-60-IP651A0	TREK-60 IP65 rated M12 system I/O cover
TREK-60-EXTIOA00	TREK-60 I/O extension with 4CH analog capture
TREK-60-EXTIOA10	TREK-60 I/O extension with 8CH analog capture