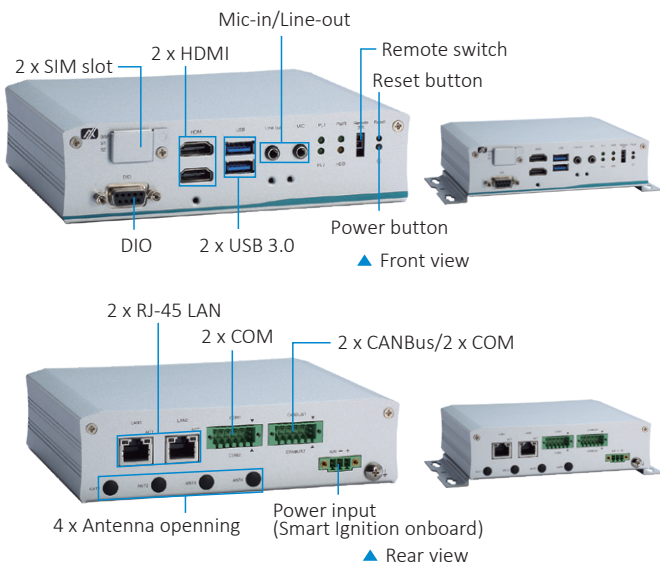


# tBOX110

Fanless Embedded System with Intel Atom® x5-E3940 Processor for Vehicle and Rail PC



## Features

- CE, FCC, LVD, EN 45545-2 and EN 50155 certified; ISO7637-2 compliant
- Intel Atom® x5-E3940 processor
- Fanless and wide operating temperatures from -40°C to +70°C
- Supports 9 to 36 VDC and 12/24 VDC typical in-vehicle power input
- Supports 24VDC/36 to 110VDC for railway power input
- Compact size with multiple COM, CANBus, and DIO for communication
- Smart Ignition for power on/off schedule, vehicle battery protection, and different power modes
- Suitable for transportation gateway applications



## Specifications

|                     |  |
|---------------------|--|
| Standard Color      | Silver   |
| Construction        | Aluminum extrusion and heavy-duty steel, IP20  |
| CPU                 | Intel Atom® x5-E3940 4C @1.6 GHz, TDP: 9.5W  |
| Chipset             | SoC integrated   |
| System Memory       | 1 x DDR3L-1866 SO-DIMM, up to 8GB  |
| BIOS                | AMI  |
| System I/O Outlet   | <p>Serial</p> <p>Vehicle:<br/>2 x RS-232/422/485 (4-wire) with shield grounding</p> <p>Railway:<br/>4 x Isolated RS-232/422/485 (4-wire) with shield grounding</p> <p>Display</p> <p>2 x HDMI 1.4b (with keylock)</p> <p>CANBus</p> <p>Vehicle: 2 x Isolated CANBus 2.0 A/B, support SocketCAN</p> <p>Audio</p> <p>1 x Mic-in, 1 x Line-out</p> <p>Ethernet</p> <p>Vehicle:<br/>2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® I210-IT)</p> <p>Railway:<br/>2 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT)</p> <p>USB</p> <p>2 x USB 3.0</p> <p>DIO</p> <p>Vehicle:<br/>1 x DB9 8-bit programmable DIO</p> <p>Railway:<br/>1 x Terminal block isolated DIO 4-in/ 4-out (isolation voltage: 2 kV)</p> <p>Others</p> <p>1 x Reset button<br/>1 x Power button<br/>1 x Remote switch<br/>4 x Antenna opening</p> |
| Expansion Interface | <p>2 x Full-size Rev.1.2 PCI Express Mini Card slot:</p> <ul style="list-style-type: none"> <li>• 1 x USB/PCIe with external SIM socket</li> <li>• 1 x mSATA/USB/PCIe with external SIM socket</li> </ul>  |




## Specifications

|                       |  |  |
|-----------------------|--|--|
| Storage               | SATA Drive   | 1 x Internal 2.5" SATA drive (9.5 mm height)   |
|                       | mSATA  | 1 x mSATA (occupied 1 x PCI Express Mini Card slot)  |
| Watchdog Timer        | 255 levels, 1 to 255 sec.  |  |
| Power                 | Power Supply   | 1 x Terminal block DC-in, (typical: 12/24 VDC) with ACC ignition<br>General use: 1 x Terminal block / M12, 9-36 VDC<br>Vehicle: 1 x Terminal block, 12/24 VDC with smart ignition<br>Railway: 1 x M12, 24 VDC / 36-110 VDC |
|                       | Power Consumption  | Vehicle: 9 VDC, 3.742A; 36 VDC, 0.907A<br>Railway:<br>24 VDC, 1.38A<br>36VDC- 110VDC, 0.98A - 0.33A  |
| System Indicator      | 1 x LED indicator for SATA drive activity<br>1 x LED indicator for power<br>2 x LED indicator for LAN activity<br>2 x Programmable indicator   |  |
| Operating Temperature | -40°C to +70°C (-40°F to +158°F) with W.T. peripheral*   |  |
| Humidity              | 0% to 95%, non-condensing  |  |
| Dimensions            | 164.1 mm (6.46") (W) x 128 mm (5.04") (D) x 44.1 mm (1.74") (H) (without wall mount)   |  |
| Mounting              | Wall mount, DIN-rail   |  |
| Weight (net/gross)    | 1.02 kg (2.24 lb)/1.44 kg (3.17 lb)  |  |
| Certifications        | CE , FCC, LVD, EN 45545-2 and EN 50155 certified; ISO 7637-2 compliant   |  |
| EMC                   | CE/FCC   | EN 55022 (Class A), EN 55024, EN 50155, EN 50121-3-2, IEC 62236-3-2, FCC part 15 B (Class A)   |
| Vibration Endurance   | 3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating)<br>1 Grms w/ HDD (5 to 500Hz, X/Y/Z direction; random, operating)<br>2 Grms w/ HDD & Anti-Vibration Kit (5 to 500Hz, X/Y/Z direction; random, operating)<br>MIL-STD-810G, Method 514.6C-VI Category 4 compliant |  |
| EOS Support           | Windows® 10 64-bit, Ubuntu 20.04   |  |
| Software Support      | AXView   |  |

\*Wide temperature . All W.T. supported products have to be sorted by Axiomtek.

## Ordering Information

### System

|                                      |   |   |
|--------------------------------------|---|---|
| tBOX110-APL-TV<br>(P/N: E26N110100)  | Fanless vehicle grade embedded system with Intel Atom® processor E3940, 2 RJ-45 GbE LAN, terminal block DC-in, 2 USB 3.0, 2 HDMI, 2 COM, DIO, 2 CAN, audio mic-in/line-out, with Smart ignition, TPM 2.0, and 12/24 VDC |  |
| tBOX110-APL-MR1<br>(P/N: E26N110101) | Fanless embedded system with Intel Atom® processor E3940, 2 M12 GbE LAN, M12 DC-in, 2 USB 3.0, 2 HDMI, 4 COM, DIO, audio mic-in/ line-out, TPM 2.0, and 24 VDC  |  |
| tBOX110-APL-MR2<br>(P/N: E26N110102) | Fanless embedded system with Intel Atom® processor E3940, 2 M12 GbE LAN, M12 DC-in, 2 USB 3.0, 2 HDMI, 4 COM, DIO, audio mic-in/ line-out, TPM 2.0, and 36-110VDC   |  |

### Optional

|                       |              |  |
|-----------------------|--------------|--|
| Communication modules | 8812C300CA0E | AP12356WT Wi-Fi kit for ICO300 SFP (E) |
|                       | 886N32410A0E | MCR8822CE-P WiFi KIT(20)for tBOX(E)    |
|                       | 886N11010A0E | LTE LE910C4-AP (20)for tBOX110(E)      |
| AC to DC adapter      | 509000001500 | PWS FSP120-AAAN3(9NA1206647) FSP 120W  |

\*Specifications and certifications may vary based on different requirements.

## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

RPP (reverse polarity protection)

ISO 7637-2 pulse 1, 2a, 2b, 3a, 3b, 4 (vehicle version)

Setting for in-vehicle battery protection: system will be automatically turned down at low voltage level

Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-ON delay and shut down delay

## Dimensions

