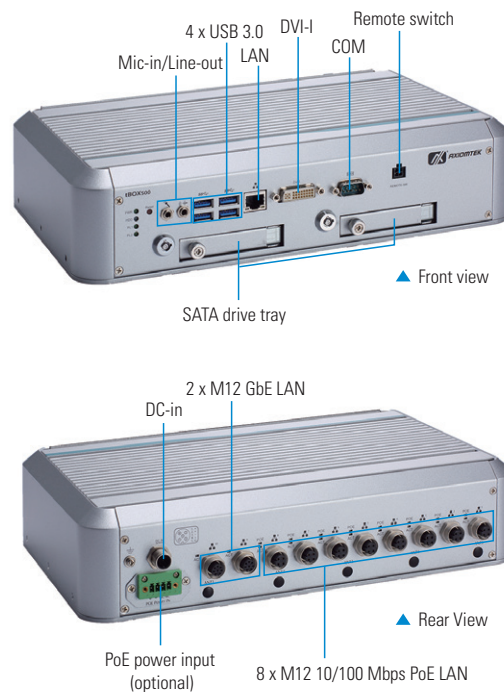


# tBOX400-510-FL NEW

Fanless Embedded System with 7th Gen Intel® Core™ i7/i5/i3 & Celeron® Processors, Built-in Layer 2 Managed PoE Switch for Railway PC

## Features

- CE, LVD and FCC certified; EN 50155 and EN 45545-2 compliant
- 7th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Kaby Lake)
- Fanless and wide operating temperature from -40°C to 70°C
- Power supply: 24 to 110 VDC for Railway version
- Built-in layer 2 managed PoE switch
- PoE power budget up to 120W by 8 ports
- Optimized network performance with QoS, VLAN and PoE scheduling, etc.



## Specifications

|                     |                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard Color      | Silver                                                                                                                                                                                                                                                                                                                                                                                                        |
| Construction        | Aluminum extrusion and heavy-duty steel, IP30                                                                                                                                                                                                                                                                                                                                                                 |
| CPU                 | Intel® Core™ i7-7600U 2C @2.8 GHz TDP: 15W<br>Intel® Core™ i5-7300U 2C @2.6 GHz TDP: 15W<br>Intel® Core™ i3-7100U 2C @2.4 GHz TDP: 15W<br>Intel® Celeron® 3965U 2C @2.2 GHz TDP: 15W                                                                                                                                                                                                                          |
| Chipset             | SoC integrated                                                                                                                                                                                                                                                                                                                                                                                                |
| System Memory       | 2 x DDR4-1866/2133 SO-DIMM slot, up to 32G                                                                                                                                                                                                                                                                                                                                                                    |
| BIOS                | AMI                                                                                                                                                                                                                                                                                                                                                                                                           |
| TPM                 | TPM 2.0 (optional)                                                                                                                                                                                                                                                                                                                                                                                            |
| System I/O Outlet   | Serial 1 x DB9 serial console or RS-232/422/485<br>Display 1 x DVI-I (up to 1920 x1200 @60Hz, 1 x VGA and 1 x DVI included)<br>Audio 1 x Mic-in, 1 x Line-out<br>Ethernet 8 x M12 D-coded 10/100 Mbps Ethernet<br>2 x M12 A-coded 10/100/1000 Mbps Ethernet<br>1 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT)<br>USB 4 x USB 3.0<br>Others 1 x Reset button<br>1 x Remote switch<br>5 x Antenna opening |
| Expansion Interface | 3 x Full-size Rev.1.2 PCI Express Mini Card slot:<br>• 1 x mSATA/PCIe<br>• 2 x USB/PCIe with SIM socket                                                                                                                                                                                                                                                                                                       |
| Storage             | SATA Drive 2 x Swappable 2.5" SATA drive (9.5 mm height), Intel® RAID 0/1 supported<br>mSATA 1 x mSATA (occupied 1 x PCI Express Mini Card slot)                                                                                                                                                                                                                                                              |
| Watchdog Timer      | 255 levels, 1 to 255 sec.                                                                                                                                                                                                                                                                                                                                                                                     |
| Power               | Power Supply Railway: 1 x M12, 24 to 110 VDC<br>Power 24V - 110V, 3.5A - 0.7A<br>Consumption                                                                                                                                                                                                                                                                                                                  |

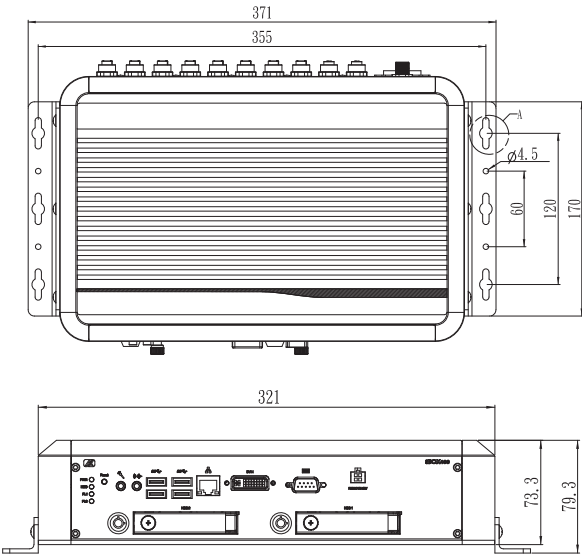
|                                     |                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PoE (PSE, Power Sourcing Equipment) | PoE Power Source 1 x M12 PoE power-in with PSU120-259 (optional, see ordering info)<br>PoE Performance (Layer 2 Managed PoE Switch) 8 x configurable M12 D-coded PoE output max. 120W supports PoE & PoE+<br>• PoE (802.3af 15.4W/port)<br>• PoE+ (802.3at 30W/port)<br>To be used with PSU120-259 series (optional, see ordering info) |
| System Indicator                    | 1 x LED indicator for SATA drive activity<br>1 x LED indicator for power<br>2 x Programmable                                                                                                                                                                                                                                            |
| Operating Temperature               | -40°C to +70°C (-40°F to +158°F) with W.T. peripheral*<br>-40°C to +60°C (-40°F to +140°F) with external PoE PSU & W.T. peripheral*                                                                                                                                                                                                     |
| Humidity                            | 0% to 95%, non-condensing                                                                                                                                                                                                                                                                                                               |
| Dimensions                          | 321 mm (12.64") (W) x 210.2 mm (8.28") (D) x 73.3 mm (2.89") (H) (without wall mount)                                                                                                                                                                                                                                                   |
| Mounting                            | Wall mount                                                                                                                                                                                                                                                                                                                              |
| Weight (net/gross)                  | 3.5 kg (7.72 lb)/5.17 kg (11.40 lb)                                                                                                                                                                                                                                                                                                     |
| Certifications                      | CE (Class A), LVD and FCC (Class A) certified; EN 50155 and EN 45545-2 compliant                                                                                                                                                                                                                                                        |
| EMC                                 | CE/FCC EN 61000-6-4 (Class A), EN 61000-6-2, FCC part 15 B (Class A)<br>EN 50155 EN 50121-3-2, IEC 62236-3-2                                                                                                                                                                                                                            |
| LVD                                 | EN 62368-1                                                                                                                                                                                                                                                                                                                              |
| Vibration Endurance                 | 3 Grms w/ SSD (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-VL Category 4 compliant<br>EN 50155 EN (IEC) 61373 category 1 class B                                                                              |
| Shock                               | EN 50155 EN (IEC) 61373 category 1 class B, half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)                                                                                                                                                                                                |
| EOS Support                         | Windows® 10 64-bit, Ubuntu 18.04                                                                                                                                                                                                                                                                                                        |
| Software Support                    | AMS.AXView                                                                                                                                                                                                                                                                                                                              |

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

Ethernet Software Features

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Management               | Interface: CLI, Telnet and Web Browser, SNMP v1/v2c/v3<br>Firmware and configuration upgrade and backup via TFTP<br>Supports DHCP Server/Client<br>RMON (Remote monitoring): group 1, 2, 3, 9<br>Port mirroring: TX/RX and both<br>NTP (Network Time Protocol) time synchronization<br>IEEE 802.1ab LLDP (Link Layer Discovery Protocol)                                                                                                              |
| Security                 | MAC address filtering<br>Enable/disable port<br>Storm control (broadcast and multicast types)<br>IEEE 802.1x LAN access control<br>Remote authentication through RADIUS<br>SSH for CLI and Telnet security<br>SSL for web security<br>System log (remote/local)<br>ACL                                                                                                                                                                                |
| Quality of Service (QoS) | Priority Queues: 4 queues per port<br>Traffic classification based on IEEE 802.1p CoS, DSCP, WRR (weighted round robin) and strict mode<br>Rate Limiting (ingress/egress)                                                                                                                                                                                                                                                                             |
| Network Redundant        | IEEE 802.1D Spanning Tree Protocol (STP)<br>IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)<br>IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)<br>EtherWAN's Alpha-Ring network fault recovery (<15ms)                                                                                                                                                                                                                                             |
| Software                 | Auto-negotiation for port speed and duplex mode:<br>Flow Control<br>IEEE 802.3x full duplex mode<br>Back-Pressure half duplex mode<br>VLANs:<br>IEEE 802.1Q Tag VLANs (128 groups, 4096 VID)<br>GVRP (GARP VLAN Registration Protocol)<br>GMRP (GARP Multicast Registration Protocol)<br>Link Aggregation:<br>Static Trunk (4 groups, support MAC base)<br>IEEE 802.3ad Link Aggregation Control Protocol<br>IGMP Snooping:<br>IGMP snooping v1/v2/v3 |

Dimensions



Ordering Information

|                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>System</b>                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| tBOX400-510-FL-Celeron/i3/i5/i7-24-110MRDC<br>(P/N: E26N400100) for i7-7600U<br>(P/N: E26N400101) for i5-7300U<br>(P/N: E26N400102) for i3-7100U<br>(P/N: E26N400103) for 3965U | Fanless railway embedded system, layer 2 managed PoE switch, Intel® Celeron® 3965U/Core™ i3-7100U/ i5-7300U/ i7-7600U processor, 4 USB 3.0, DVI-I, LAN, serial console or RS-232/422/485, Mic-in & Line-out, two 2.5" SATA trays, M12 A-code DC-in, and 24 to 110 VDC                                                                                                                                                                                                                                                                  |
| *MRDC: M12 DC-IN connector, Railway SKU, DC voltage input                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>PSU120-259</b>                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Railway-24VDC (P/N: E276120105)<br>Railway-48VDC (P/N: E276120106)<br>Railway-96/110VDC (P/N: E276120107)                                                                       | Fanless IEC 60945 certified/EN 50155 compliant DC-DC adapter<br>• Supports 24/48/96/110V-in<br>• Power output max. 120W<br>• -40°C to +60°C (-40°F to +140°F)<br>• For tBOX400                                                                                                                                                                                                                                                                                                                                                         |
| <b>Optional</b>                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Anti-vibration Kit (P/N: 8816N5008A0E)                                                                                                                                          | For in-vehicle/rolling stock which improves HDD stability in NVR applications                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Communication Modules                                                                                                                                                           | 8816N3239A0E 3G UC20GKit for tBOX/UST (3G ANT) (E)<br>8816N3235A0E 3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E)<br>8816N5003A0E AP12356 WT Wi-Fi kit for tBOX/UST SFP (E)<br>8816N5002A0E LTE MC7455(US) kit for tBOX/UST SFP (E)<br>8816N5000A0E LTE SIM7100JC kit for tBOX, JPN SFP (E)<br>8816N5006A0E LTE+GPS SIM7100 (JPE) kit tBOX (30) SFP (E)<br>88160620BA0E LTE SIMCOM SIM7100 (EU) for tBOX/UST SFP (E)<br>881745000A0E LTE+GPS SIM7100EU kit for tBOX/UST SFP (E)<br>8816N5004A0E LTE+GPS SIM7100C (TW) kit tBOX (30) SFP (E) |
| AC to DC Adapter                                                                                                                                                                | 50966224010E Adapter 24V 90W, M12 A-code 5P FSP090AAAN3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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

Power Protection

- SCP (short circuit protection)  
OVP (over voltage protection)  
UVP (under voltage protection)  
RVP (reverse voltage protection)