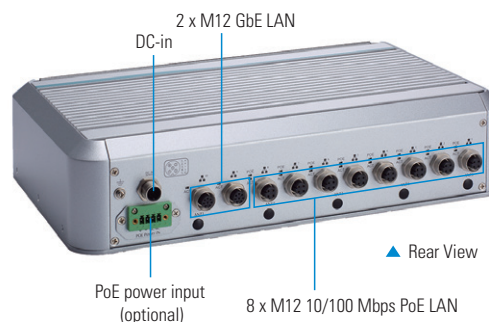
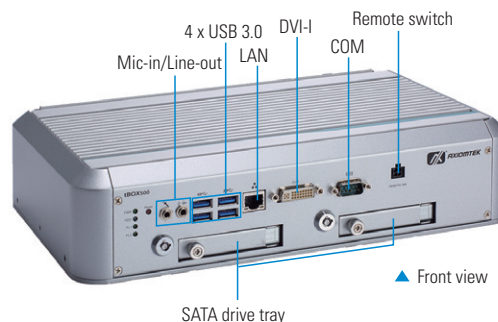


# tBOX400-510-FL

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

## Features

- Built-in layer 2 managed PoE switch
- 7th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Kaby Lake)
- Fanless and wide operating temperature from -40°C to 70°C
- CE, LVD, FCC, EN 50155 and EN 45545-2 certified
- Power supply: 24 to 110 VDC for Railway version
- 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 Intel® Core™ i5-7300U 2C @2.6 GHz TDP: 15W Intel® Core™ i3-7100U 2C @2.4 GHz TDP: 15W 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 Display 1 x DVI-I (up to 1920 x1200 @60Hz, 1 x VGA and 1 x DVI included) Audio 1 x Mic-in, 1 x Line-out Ethernet 8 x M12 D-coded 10/100 Mbps Ethernet 2 x M12 A-coded 10/100/1000 Mbps Ethernet 1 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT) USB 4 x USB 3.0 Others 1 x Reset button 1 x Remote switch 5 x Antenna opening
Expansion Interface	3 x Full-size Rev.1.2 PCI Express Mini Card slot: • 1 x mSATA/PCIe • 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 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 Power 24V - 110V, 3.5A - 0.7A Consumption


PoE (PSE, Power Sourcing Equipment)	PoE Power Source	1 x M12 PoE power-in with PSU120-259 (optional, see ordering info)
	PoE Performance (Layer 2 Managed PoE Switch)	Broadcom processor onboard 8 x configurable M12 D-coded PoE output max. 120W supports PoE & PoE+ • PoE (802.3af 15.4W/port) • PoE+ (802.3at 30W/port) To be used with PSU120-259 series (optional, see ordering info)
System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power 2 x Programmable	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral* -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), EN 50155, EN 45545-2 certified	
EMC	CE/FCC	EN 61000-6-4 (Class A), EN 61000-6-2, FCC part 15 B (Class A)
	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) 2 Grms w/ HDD & Anti-Vibration Kit (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant	
	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 Firmware and configuration upgrade and backup via TFTP Supports DHCP Server/Client RMON (Remote monitoring): group 1, 2, 3, 9 Port mirroring: TX/RX and both NTP (Network Time Protocol) time synchronization IEEE 802.1ab LLDP (Link Layer Discovery Protocol)
Security	MAC address filtering Enable/disable port Storm control (broadcast and multicast types) IEEE 802.1x LAN access control Remote authentication through RADIUS SSH for CLI and Telnet security SSL for web security System log (remote/local) ACL
Quality of Service (QoS)	Priority Queues: 4 queues per port Traffic classification based on IEEE 802.1p CoS, DSCP, WRR (weighted round robin) and strict mode Rate Limiting (ingress/egress)
Network Redundant	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) EtherWAN's Alpha-Ring network fault recovery (<15ms)
Software	Auto-negotiation for port speed and duplex mode: Flow Control IEEE 802.3x full duplex mode Back-Pressure half duplex mode VLANs: IEEE 802.1Q Tag VLANs (128 groups, 4096 VID) GVRP (GARP VLAN Registration Protocol) GMRP (GARP Multicast Registration Protocol) Link Aggregation: Static Trunk (4 groups, support MAC base) IEEE 802.3ad Link Aggregation Control Protocol IGMP Snooping: IGMP snooping v1/v2/v3


## Ordering Information

<b>System</b>	tBOX400-510-FL-Celeron/i3/i5/i7-24-110MRDC (P/N: E26N400100) for i7-7600U (P/N: E26N400101) for i5-7300U (P/N: E26N400102) for i3-7100U (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		

### PSU120-259

Railway-24VDC (P/N: E276120105) Railway-48VDC (P/N: E276120106) Railway-96/110VDC (P/N: E276120107)	Fanless IEC 60945 certified/EN 50155 compliant DC-DC adapter • Supports 24/48/96/110V-in • Power output max. 120W • -40°C to +60°C (-40°F to +140°F) • For tBOX400	
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### Optional

Anti-vibration Kit (P/N: 8816N5008A0E)	For in-vehicle/rolling stock which improves HDD stability in NVR applications		
Communication Modules	8816N3239A0E 8816N3235A0E 8816N5003A0E 8816N5000A0E 8816N5004A0E 88160620BA0E	3G UC20GKit for tBOX/UST (3G ANT) (E) 3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E) AP12356 WT Wi-Fi kit for tBOX/UST SFP (E) LTE SIM7100JC kit for tBOX, JPN SFP (E) LTE SIM7100C (TW) kit for tBOX SFP (E) LTE SIMCOM SIM7100 (EU) for tBOX/UST 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)

## Dimensions

