

# tBOX500-510-FL NEW

Fanless Embedded System with 7th Gen Intel® Core™ i7/i5/i3 & Celeron® Processors for Vehicle, Railway and Marine PC

## Features

- CE (Class A), FCC, EN 50155, EN 50121, EN 45545-2, E-Mark and ISO 7637-2 certified; DNV 2.4 and IEC 60945 compliance
- 7th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Kaby Lake)
- 2 VAM slots, wide selections (COM/LAN/DIO/PoE/CAN/BNC)
- External PoE PSU (optional), up to 120W power supply
- Fanless design and suitability for wide operating temperatures from -40°C to +70°C
- 12/24/48/72/96/110VDC power input
- Intelligent solution of vehicle power management (ACC ignition)
- 2 swappable 2.5" SATA drives



## Specifications

Standard Color	Silver				
Construction	Aluminum extrusion and heavy-duty steel, IP30				
CPU	Intel® Core™ i7-7600U 2C @ 2.8 ~ 3.9 GHz Intel® Core™ i5-7300U 2C @ 2.6 ~ 3.5 GHz Intel® Core™ i3-7100U 2C @ 2.4 GHz Intel® Celeron® 3965U 2C @ 2.2 GHz				
System Memory	2 x DDR4-1866/2133 SO-DIMM, up to 32GB				
Chipset	SoC integrated				
BIOS	AMI				
System I/O Outlets	<table border="0"> <tr> <td>Rear Side</td> <td>1 x M12 or Terminal block DC-in (optional) 1 x PoE power-in (Terminal block, optional) 2 x modular IO slot</td> </tr> <tr> <td>Front Side</td> <td>4 x LED indicator 2 x audio (Mic-in/Line-out) 1 x RJ-45 10/100/1000 Mbps Ethernet (Intel® I210-IT) 4 x USB 3.0 1 x DVI-I 1 x DB9 serial console or RS-232/422/485 1 x remote switch 1 x reset bottom 2 x HDD/SSD tray</td> </tr> </table>	Rear Side	1 x M12 or Terminal block DC-in (optional) 1 x PoE power-in (Terminal block, optional) 2 x modular IO slot	Front Side	4 x LED indicator 2 x audio (Mic-in/Line-out) 1 x RJ-45 10/100/1000 Mbps Ethernet (Intel® I210-IT) 4 x USB 3.0 1 x DVI-I 1 x DB9 serial console or RS-232/422/485 1 x remote switch 1 x reset bottom 2 x HDD/SSD tray
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Watchdog Timer	255 levels, 1 ~ 255 sec.				
Storage	2 x swappable 2.5" 7/9.5 mm SATA drive 1 x mSATA (use 1 PCI Express Card slot)				
RAID function	Intel® RAID 0/1				
Expansion Interface	3 x full-size PCI Express Mini Card slot 2 x SIM Card slot 2 x Value-added module slot				
System Indicator	1 x LED indicator for system power 1 x LED indicator for HDD activities 2 x programmable				
Power Supply	9 ~ 36 VDC, typical: 12/24 VDC or 16.8 ~ 137.5 VDC, typical: 24/48/72/96/110 VDC				
PoE Power Supply	PoE power output maximum 120W 15.4W/8 ports (802.3af), 30W/4 ports (802.3at)				
Operating Temperature	-40°C ~ +70°C (-40°F ~ +158°F) with W.T. SSD -25°C ~ +55°C (-13°F ~ +131°F) with W.T. HDD				
Humidity	5% ~ 95%, non-condensing				
Vibration Endurance (operational)	3 Grms w/ SSD (5 ~ 500Hz, X/Y/Z direction; random) 1.5 Grms w/ HDD (5 ~ 500Hz, X/Y/Z direction; random)				
Dimensions	321 mm (12.64") (W) x 210.2 mm (8.28") (D) x 73.3 mm (2.89") (H)				
Shock (non-operating test)	30g				
Weight	3.5 kg (7.72 lb)/4.5 kg (11.02 lb)				
Certificates	CE (Class A), FCC, EN 50155, EN 50121, EN 45545-2, E-Mark and ISO 7637-2 certified; DNV 2.4 and IEC 60945 compliance				
EOS support	Windows® 10 64-bit, Linux				



▲ Front view












▲ Rear view

## Ordering Information

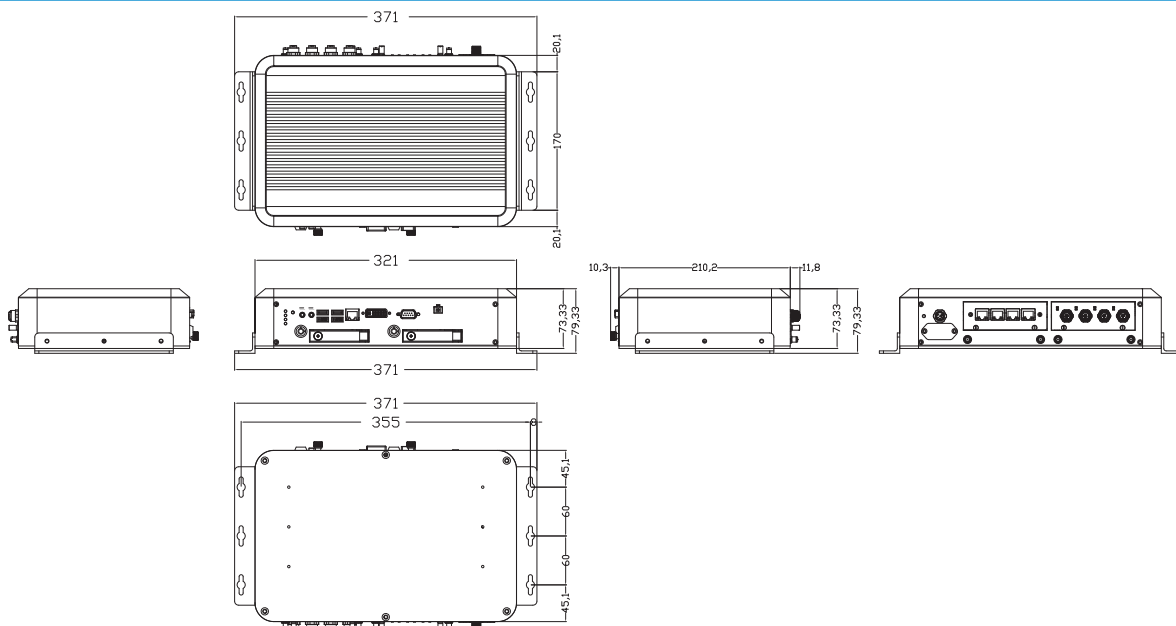
Standard	
tBOX500-510-FL-Celeron-24-110MRDC (P/N: E26N500103)	Fanless railway embedded system, Intel® Celeron® 3965U 2.2 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, M12 A-code 5P DC-in, and 16.8~137.5VDC
tBOX500-510-FL-i3-24-110MRDC (P/N: E26N500102)	Fanless railway embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, M12 A-code 5P DC-in, and 16.8~137.5VDC
tBOX500-510-FL-i5-24-110MRDC (P/N: E26N500101)	Fanless railway embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, M12 A-code 5P DC-in, and 16.8~137.5VDC
tBOX500-510-FL-i7-24-110MRDC (P/N: E26N500100)	Fanless railway embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, M12 A-code 5P DC-in, and 16.8~137.5VDC
tBOX500-510-FL-Celeron-TVDC 2018 Q3 available	Fanless vehicle embedded system, Intel® Celeron® 3965U 2.2 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, 9 ~ 36VDC, TB 3P DC-in, and ACC ignition
tBOX500-510-FL-i3-TVDC 2018 Q3 available	Fanless vehicle embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, 9 ~ 36VDC, TB 3P DC-in, and ACC ignition
tBOX500-510-FL-i5-TVDC 2018 Q3 available	Fanless vehicle embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, 9 ~ 36VDC, TB 3P DC-in, and ACC ignition
tBOX500-510-FL-i7-TVDC 2018 Q3 available	Fanless vehicle embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, 9 ~ 36VDC, TB 3P DC-in, and ACC ignition
tBOX500-510-FL-Celeron-TMDC	Fanless marine embedded system, Intel® Celeron® 3965U 2.2 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, TB 3P DC-in, and 14 ~ 32VDC
tBOX500-510-FL-i3-TMDC	Fanless marine embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, TB 3P DC-in, and 14 ~ 32VDC
tBOX500-510-FL-i5-TMDC	Fanless marine embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, TB 3P DC-in, and 14 ~ 32VDC
tBOX500-510-FL-i7-TMDC	Fanless marine embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, 4 USB 3.0, DVI-I, RJ-45 LAN, serial console, Mic-in/Line-out, two 2.5" SATA trays, TB 3P DC-in, and 14 ~ 32VDC

## Ordering Information

### I/O Module Specification

Item	Spec		
#1	4 x M12 A-coded GbE (P/N: E393718100) (PoE is optional, P/N: E393718101) <b>tBOX500 module</b>		
		VAM700	VAM701 (PoE/PoE+)
#2	4 x RJ-45 GbE (P/N: E393719100) (PoE is optional, P/N: E393719101) <b>tBOX500 module</b>		
		VAM702	VAM703 (PoE/PoE+)
#3	4 x 4-wire isolated RS-232/422/485 (P/N: E393720100) <b>tBOX500 module</b>		
		VAM100	
#4	4 x isolated CANbus 2.0A/B (P/N: E393734100) <b>tBOX500 module</b>		
		VAM101	
#5	8-in/8-out isolated DIO (P/N: E393721100) <b>tBOX500 module</b>		
		VAM200	
#6	2 x PCI Express Mini Card slot + 2 x SIM Card slot (P/N: E393735100) <b>tBOX500 module</b>		
		VAM600	
#7	Video & Audio-in + 1 x PCI Express Mini Card slot + 2 x SIM Card slot + 1 x capture card (P/N: E393731100) <b>tBOX500 module</b>		
		VAM400	

### Dimensions



### Optional

2.5" SATA HDD/SSD	128GB or above
mSATA	64GB or above
DDR4 SO-DIMM	4GB ~ 16GB
3G/4G/GPS module	826N3230140E, 826O6200410E
Wi-Fi/Bluetooth module	826N3230060E, 826N3230100E, 826N3230110E, 826N3230120E
DC in cable	594B8120B30E (M12, w/o ACC), 594B7100B00E (Wire, w/ ACC)
LAN cable	594N3202730E
Remote Switch Cable	594K3101020E
Value-added module (VAM)	VAM700, VAM701, VAM702, VAM703, VAM100, VAM101, VAM200, VAM600, VAM400
AC to DC Adapter	50906D24000E (24V/120W,WIRE), 50966224010E (24V 90W, M12 Acode 5P)
Power cord	59903000000E (EU), 59906000010E (JP), 59902000000E (US)
PSU120-259	E276120100, PoE 120W DC/DC external PSU (24V railway and marine only)

\*Specifications and certifications may vary according to various options.

### Power Protection

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

### Vehicle Version

ISO 7637-2 pulse 1/2/3/4

Setting for battery protection: Low voltage or very low voltage

Setting for ignition control: Low voltage counter, ACC-ON delay or shut down delay

### Packing List

1 x Quick Installation Guide  
1 x Driver CD  
4 x Foot Pad  
1 x Screw Pack  
1 x Wall Mount Kit  
4 x DRAM Thermal Pad  
1 x DRAM L Type Bracket  
1 x Terminal block DC In Connector  
4 x HDD Mylar  
2 x SATA Drive Key

