



# 2023

## Intelligent Transportation Platforms



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## Intelligent Transportation Platforms

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# New Product Highlights

## Transportation Embedded Systems

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### tBOX520 >>Page 16

Fanless Embedded System with 12th Gen Intel® Core™ i7/i5/i3 Processor for Railway



- CE, LVD, FCC, EN 50155, EN 45545-2 certified
- 12th gen Intel® Core™ i7/i5/i3 or Celeron® processor (Alder Lake-U)
- 24 to 110 VDC for Railway applications
- Value-added modules available for various I/O requirements (COM/LAN/DIO/PoE/CAN/BNC)
- Intelligent solution of power management (ACC ignition)
- 2 swappable 2.5" SATA drives

### tBOX110 >>Page 36

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



- 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

## Value-added Modules and Peripherals

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### VAM708 >>Page 57

Value-added Modules



- Intel® i210-IT with LAN Bypass feature and latch relay circuitry design
- 4 M12 A-coded GbE LAN
- 4 ACT LED for each LAN port
- 2 LED for LAN Bypass status
- Wide operating temperature from -40°C to +70°C
- CE, LVD, FCC and EN 50155 certified
- Thumb screw

## Transportation Touch Panel PCs and Monitors

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### **GOT715S** >>Page 76

EN 50155 Compliant 15" XGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-25°C to +70°C)

- Sunlight readable 15" XGA TFT LCD with 800 nits of high brightness
- Fanless with Intel Atom® processor E3845 1.91 GHz
- All lockable connectors design
- Auto-dimming for different environments
- -25°C to +70°C wide temperature range
- Typical 24 to 110 VDC wide power input range and EN 50155 Class S3 20ms power interruption protection compliant
- EN 50155 design compliance



### **P7180** >>Page 85

18.5" Full HD Open Frame Railway Monitor for Passenger Information System (PIS)

- EN 50155 compliance
- 18.5" Full HD TFT LCD
- Wide viewing angle and high brightness of 500 nits
- HDMI, DVI-D and VGA video inputs
- 24 to 110 VDC power input
- Supports VESA arm (100 x 100 mm)
- -25°C to +55°C wide operating temperature range
- Supports 5 OSD keys

# 1

## Transportation Embedded Systems

Axiomtek is committed to providing its reliable transportation embedded system for transportation PC applications such as vehicle, railway, marine or other station and facility usage. The stability and reliability of the tBOX series and UST series have helped earn the product an ISO 7637-2 rating and an E-Mark certificate for vehicle applications; meanwhile, the tBOX series has qualified for either EN 50155, EN 50121 and EN 45545 certification for railway applications, or DNV 2.4 and IEC 60945 for marine applications.

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## Intelligent Transportation Platforms

# Transportation Embedded Systems

## Selection Guide



NEW



Features\Models	tBOX810-838-FL	tBOX520	tBOX510-518-FL
CPU Level	Intel Atom® E3845 4C @ 1.91 GHz Intel Atom® E3827 2C @ 1.75 GHz	12th gen Intel® Core™ i7/i5/i3/Celeron Alder Lake-U (15W/28W)	Intel® Core™ i7-7600U 2.8 GHz Intel® Core™ i5-7300U 2.6 GHz Intel® Core™ i3-7100U 2.4 GHz Intel® Celeron® 3965U 2.2 GHz
System Memory	DDR3L-1333 4GB DRAM	2 x DDR5-4800 SO-DIMM, up to 64GB	1 x DDR4-2133 SO-DIMM, up to 16GB
Chipset	SoC integrated	SoC integrated	SoC integrated
TPM	N/A	TPM 2.0	TPM 2.0
Serial	2 x Serial console or RS-232/422/485	1 x DB9 serial console or RS-232/422/485	1 x Serial console or RS-232/422/485
CANBus	N/A	N/A	N/A
Display	1 x VGA	2 x Type A HDMI 1.4b (4K)	1 x VGA, 1 x HDMI
Audio	1 x Mic-in, 1 x Line-out, 1 x Line-in (occupied 1 x PCIe Mini Card slot, optional)	1 x Mic-in, 1 x Line-out	N/A
Ethernet	Railway: 2 x M12 A-coded 10/100/1000 Mbps (Intel® i210-IT) Marine/Vehicle: 2 x RJ-45 10/100/1000 Mbps (Intel® i210-IT)	1 x RJ-45 2.5GbE (Intel® i226-IT)	2 x RJ-45 10/100/1000 Mbps (Intel® i210-IT)
PoE (PSE, Power Sourcing Equipment)	N/A	8 x configurable M12/RJ-45 PoE • PoE (802.3af 15.4W/port) • PoE+ (802.3at 30W/port)	N/A
USB	2 x USB 2.0	4 x USB 3.0	2 x USB 2.0 (in 1x M12 A-coded) 4 x USB 3.0
DIO	1 x 8-bit programmable DIO	N/A	1 x Isolated DIO 4-in/4-out
Expansion Interface	2 x Full-size mPCIe Card slot 1 x SIM card slot	1 x M.2 Key M 2280 NVMe SSD 1 x M.2 Key B for 5G/WiFi 6/BT 1 x Full-size Rev.1.2 mPCIe for LTE/WiFi/BT 1 x M.2 Key A+E for WiFi 6/BT 2 x nano SIM slot	2 x Full-size mPCIe Card slot 1 x external SIM card slot
Storage	1 x 2.5" SATA HDD/SSD 1 x mSATA (occupied mPCIe card slot)	2 x Swappable 2.5" SATA drive (9.5 mm height)	1 x Swappable 2.5" SATA drive 1 x CFast™
RAID Function	N/A	Intel® RAID 0/1	N/A
Watchdog Timer	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.
Power Supply	Railway: 24 VDC (M12) Vehicle: 12/24 VDC (ACC ignition, terminal block) Marine: 24 VDC (terminal block)	Railway: 1 x M12, 24 to 110 VDC	24- 110 VDC (M12) (S2 Optional)
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral
Mounting	Wall mount, DIN-rail	Wall mount	Wall mount, DIN-rail
Dimensions (W x D x H) without Mounting	164.1 x 108 x 44 mm (6.46" x 4.25" x 1.73")	321 x 210.2 x 73.3 mm (12.64" x 8.28" x 2.89")	119.8 x 124.8 x 155 mm (4.72" x 4.91" x 6.1")
Weight (net/gross)	0.77 kg (1.70 lb)/2 kg (4.41 lb)	TBD	2.50 kg (5.51 lb)/ 2.65 kg (5.84 lb)
Certifications	CE (Class A), FCC (Class A), EN 50155, EN 45545-2, E-Mark, IEC 60945 and DNV 2.4 certified	CE (Class A), LVD, FCC (Class A), EN 50155**, EN 45545-2	CE (Class A), LVD, FCC (Class A), EN 50155, EN 45545-2 certified; EN 50124 compliant
EOS Support	Windows® 10 64-bit, WE8S, WES 7, VxWorks7, Ubuntu 15.10	Windows® 11/10 64-bit, Ubuntu 16.04	Windows® 10 64-bit, Ubuntu
Software Support	AXView	AXView	AXView

# Transportation Embedded Systems

## Selection Guide



Features\Models	tBOX500-510-FL	tBOX324-894-FL	tBOX300-510-FL
CPU Level	Intel® Core™ i7-7600U 2C @ 2.8 GHz Intel® Core™ i5-7300U 2C @ 2.6 GHz Intel® Core™ i3-7100U 2C @ 2.4 GHz Intel® Celeron® 3965U 2C @ 2.2 GHz	Intel® Core™ i7-7600U 2.8 GHz/i7-6600U 2.6 GHz Intel® Core™ i5-7300U 2.4 GHz/i5-6300U 2.4 GHz Intel® Core™ i3-7100U 2.4 GHz/i3-6100U 2.3 GHz Intel® Celeron® 3965U 2.2 GHz/3955U 2.0 GHz	Intel® Core™ i7-7600U 2.8 GHz Intel® Core™ i5-7300U 2.6 GHz Intel® Core™ i3-7100U 2.4 GHz Intel® Celeron® 3965U 2.2 GHz
System Memory	2 x DDR4-1866/2133 SO-DIMM, up to 32GB	2 x DDR4-1866/2133 SO-DIMM, up to 32GB	2 x DDR4-1866/2133 SO-DIMM, up to 32GB
Chipset	SoC integrated	SoC integrated	SoC integrated
TPM	N/A	N/A	TPM 2.0
Serial	1 x Serial console or RS-232/422/485	3 x Isolated RS-232/422/485	1 x Serial console or RS-232/422/485
CANBus	N/A	1 x Isolated CANBus 2.0 A/B, supports SocketCAN	N/A
Display	1 x DVI-I (1 x VGA and 1 x DVI)	1 x DVI-I (1 x VGA and 1 x DVI-D) 1 x VGA	1 x DVI-I (1 x VGA and 1 x DVI)
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x RJ-45 10/100/1000 Mbps (Intel® i210-IT)	4 x 10/100/1000 Mbps (M12 A-coded/RJ-45 optional)	1 x RJ-45 10/100/1000 Mbps (Intel® i210-IT)
PoE (PSE, Power Sourcing Equipment)	N/A	N/A	N/A
USB	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0
DIO	N/A	1 x Isolated DIO 4-in/4-out	N/A
Expansion Interface	3 x Full-size mPCIe Card slot 2 x SIM card slot 2 x Value-added module slot	3 x Full-size mPCIe Card slot 1 x SIM card slot	3 x Full-size mPCIe Card slot 2 x SIM card slot 1 x Value-added module slot
Storage	2 x Swappable 2.5" SATA drive 1 x mSATA (occupied mPCIe card slot)	2 x Swappable 2.5" SATA HDD/SSD 1 x CFast™	4 x Swappable 2.5" SATA drive 1 x mSATA (occupied mPCIe card slot)
RAID function	Intel® RAID 0/1	Intel® RAID 0/1	Marvell HW RAID 0/1/10
Watchdog Timer	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.
Power Supply	Railway: 24- 110 VDC (M12) Vehicle: 12/24 VDC (ACC ignition, terminal block) Marine: 24 VDC (terminal block)	Railway: 24/110/24-110 VDC (M12) Vehicle: 12/24 VDC (ACC ignition, terminal block) Marine: 24 VDC (terminal block)	Railway: 24- 110 VDC (M12) Marine: 24 VDC (terminal block)
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 PSU120 & W.T. peripheral	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral	-25°C to +70°C (-13°F to +158°F) with W.T. peripheral -25°C to +60°C (-13°F to +140°F) with PSU120 & W.T. peripheral
Mounting	Wall mount	Wall mount	Wall mount
Dimensions (W x D x H) without Mounting	321 x 210.2 x 73.3 mm (12.64" x 8.28" x 2.89")	288.5 x 211.3 x 85.75 mm (11.36" x 8.32" x 3.38")	321 x 210.2 x 105.33 mm (12.64" x 8.28" x 4.15")
Weight (net/gross)	3.5 kg (7.72 lb)/5.1 kg (11.24 lb)	5 kg (11.02 lb)/6.65 kg (14.66 lb)	5.5 kg (12.13 lb)/6.7 kg (14.77 lb)
Certifications	CE (Class A), LVD, FCC (Class A), EN 50155, EN 45545-2, IEC 60945 certified; ISO 7637-2 compliant	CE (Class A), LVD, FCC (Class A), EN 50155, EN 45545-2, E-Mark, IEC 60945 and DNV 2.4 certified	CE (Class A), LVD, FCC (Class A) and EN 50155 certified; EN 45545-2 compliant
EOS Support	Windows® 10 64-bit, Ubuntu 16.04	WES 7, Windows 10 64-bit, Ubuntu 16.10 and above	Windows® 10 64-bit, Ubuntu 18.04
Software Support	AXView	AXView	AXView



NEW



Features\Models	tBOX110
CPU Level	Intel Atom® E3940 4C @1.6 GHz
System Memory	1 x DDR3L-1866 SO-DIMM, up to 8GB
Chipset	SoC integrated
TPM	TPM 2.0
Serial	Vehicle: 2 x RS-232/422/485 (4-wire) Railway: 4 x Isolated RS-232/422/485 (4-wire)
CANBus	Vehicle: 2 x Isolated CANBus 2.0 A/B, supports SocketCAN
Display	2 x HDMI 1.4b (with keylock)
Audio	1 x Mic-in, 1 x Line-out
Ethernet	Railway: 2 x M12 A-coded 10/100/1000 Mbps (Intel® I210-IT) Vehicle: 2 x RJ-45 10/100/1000 Mbps (Intel® I210-IT)
USB	2 x USB 3.0
DIO	Railway: 1 x Isolated DIO 4-in/4-out Vehicle: 1 x DB9 8-bit programmable DIO
Expansion Interface	2 x Full-size Rev.1.2 mPCIe Card slot
Storage	1 x Internal 2.5" SATA drive 1 x mSATA (occupied 1 x PCIe Mini Card slot)
RAID Function	N/A
Watchdog Timer	255 levels, 1 to 255 sec.
Power Supply	Railway: 24/36-110 VDC (M12) Vehicle: 12/24 VDC (Smart ignition, terminal block), AT Mode: 9-36 VDC
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*
Mounting	Wall mount, DIN-rail
Dimensions (W x D x H) without Mounting	164.1 x 128 x 44.1 mm (6.46" x 5.04" x 1.74")
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
EOS Support	Windows® 10 64-bit, Ubuntu 20.04
Software Support	AXView

# Transportation Embedded Systems

## Selection Guide



Features\Models	UST510-52B-FL	UST500-517-FL	UST100-504-FL
CPU Level	LGA1151 9th/8th gen Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® (CPU TDP max. up to 65W)	7th gen Intel® Core™ 35- 65W (socket type) 6th gen Intel® Core™ 35- 65W (socket type)	7th gen Intel® Core™ 35W (socket type) 6th gen Intel® Core™ 35W (socket type)
System Memory	2 x DDR4-2666 ECC/non-ECC SO-DIMM, up to 64GB	2 x DDR4-1866/2133/2400 SO-DIMM, up to 32GB	1 x DDR4-1866/2133/2400 SO-DIMM, up to 16GB
Chipset	Intel® C246	Intel® Q170	Intel® H110
TPM	TPM 2.0	TPM 2.0	TPM 2.0
Serial	Up to 1 x Terminal block Serial console or RS-232/422/485*	2 x Serial console or RS-232/422/485	1 x DB9 Serial console or RS-232/422/485
CANBus	NA	N/A	N/A
Display	1 x VGA (up to 1920 x1200 @60Hz) 2 x HDMI (up to 4K/2K @30Hz)	1 x VGA, 1 x DVI-D, 1 x HDMI	1 x HDMI 1.4b
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out (optional)
Ethernet	8 x RJ-45 GbE LAN (w/ 2 SATA) 8 x M12 A-coded GbE LAN (w/ 4 SATA) 16 x RJ-45 GbE LAN (w/ 4 SATA) (Intel® i211-AT)	8 x RJ-45, 8 x M12 A-coded GbE LAN (w/ 4 SATA) 8 x RJ-45 GbE LAN (w/ 2 SATA) 16 x RJ-45 GbE LAN (w/ 4 SATA or 2 SATA) 8 x M12 A-coded GbE LAN (w/ 4 SATA) (Intel® i211-AT)	2 x RJ-45 10/100/1000 Mbps (Intel® i211-AT)
PoE (PSE, Power Sourcing Equipment)	8 x RJ-45 & 8 x M12/ 16 x RJ-45 PoE output max. 90W • PoE (802.3af 15.4W/port) • PoE+ (802.3at 30W/port)	16 x RJ-45/8 x RJ-45 & 8 x M12 PoE output max. 200W supports PoE & PoE+	N/A
USB	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0
DIO	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)	1 x DB9 8-bit programmable DIO
Expansion Interface	1 x Full-size Rev.1.2 mPCIe Card slot 1 x Half-size Rev.1.2 mPCIe Card slot 1 x M.2 3050/3042 key B 1 x M.2 2230 key A&E	2 x Full-size mPCIe Card slot 2 x Half-size mPCIe Card slot 2 x External accessible SIM card slot	2 x Full-size Rev.1.2 mPCIe Card slot 1 x Half-size Rev.1.2 mPCIe Card slot
Storage	2 x 2.5" 9.5 mm swappable SATA drive with 2 SATA 4 x 2.5" 9.5 mm swappable SATA drivewith 4 SATA 2 x mSATA (occupied 2 x mPCIe Card slot)	2 x 2.5" internal SATA drive (with 2 SATA) 2 x 2.5" swappable SATA drive (with 2 SATA) 4 x 2.5" swappable SATA drive (with 4 SATA) 1 x mSATA (occupied mPCIe card slot)	1 x Internal 2.5" SATA drive 1 x Full-sized mSATA (occupied mPCIe card slot) 1 x Half-sized mSATA (occupied mPCIe card slot)
RAID function	2 SATA : Intel® RAID 0/1, 4 SATA : Intel® RAID 0/1/5/10	Intel® RAID 0/1/5/10	N/A
Watchdog Timer	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.
Power Supply	General: 1 x Terminal block, 9-36 VDC, (typical 24V) Vehicle: 1 x Terminal block, 9-36 VDC, w/ smart ignition (typical 24V)	Vehicle: 24 VDC (ACC ignition, terminal block) AT Mode: 9-36 VDC	24 VDC (ACC ignition, terminal block)
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral	-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 W.T. peripheral
Mounting	Wall mount	Wall mount	Wall mount
Dimensions (W x D x H) without Mounting	8RJ 2SATA SKU: 240 x 210.5 x 82.2mm (9.45" x 8.29" x 3.24") 8M12 4SATA SKU: 240 x 210.5 x 104.2mm (9.45" x 8.29" x 4.1") 16RJ 4SATA SKU: 240 x 210.5 x 104.2mm (9.45" x 8.29" x 4.1")	2 internal SATA SKU: 280 x 210.5 x 70 mm (11.02" x 8.27" x 2.76") 2 swap. SATA SKU: 280 x 210.5 x 83.7 mm (11.02" x 8.27" x 3.30") 4 swap. SATA SKU: 280 x 210.5 x 99.2 mm (11.02" x 8.27" x 3.91")	185 x 150 x 65.15 mm (7.09" x 5.91" x 2.56")
Weight (net/gross)	8RJ 2SATA SKU: 4.16 kg (9.17 lb)/4.82 kg (10.62 lb) 8M12 4SATA SKU: 4.81 kg (10.604lb)/6.06kg (13.36lb) 16RJ 4SATA SKU: 4.796kg (10.57lb)/6.05kg(13.33lb)	2 internal SATA SKU: 3.95 kg (8.71 lb)/4.97 kg (10.96 lb) 2 swap. SATA SKU: 4.92 kg (10.85 lb)/5.75 kg (12.68 lb) 4 swap. SATA SKU: 4.92 kg (10.85 lb)/5.74 kg (12.65 lb)	1.71 kg (3.77 lb)/2.19 kg (4.83 lb)
Certifications	CE (Class A), FCC (Class A), E-Mark (E13) certified	CE (Class A), FCC (Class A), E-Mark (E13), EN 50155 certified	CE, FCC; ISO 7637-2 compliant
EOS Support	Win10/11 64 bit, Linux	Windows® 10 64-bit, Windows® 7 64/32-bit	Windows® 10/7 64-bit, Ubuntu 18.04
Software Support	AXView	AXView	AXView



Features\Models	UST210-83K-FL	UST200-83H-FL
CPU Level	Intel Atom® x5-E3940 4C @1.6 GHz, TDP: 9.5W	Intel Atom® x5-E3930 2C @ 1.3 GHz
System Memory	1 x DDR3L-1866 SO-DIMM, up to 8GB	1 x DDR3L-1866 SO-DIMM, up to 8GB
Chipset	SoC integrated	SoC integrated
TPM	TPM 2.0	TPM 2.0
Serial	Up to 2 x Terminal block Serial console or RS-232/422/485**	1 x DB9 Serial console or RS-232/422/485
CANBus	1 x Terminal block CANBus 2.0 A/B**, supports SocketCAN*	1 x CANBus 2.0 A/B, supports SocketCAN
Display	1 x HDMI (up to 1920x1080@60Hz)	1 x VGA (HDMI optional)
Audio	N/A	N/A
Ethernet	4 x RJ-45 10/100/1000 Mbps (Intel® i211-AT)	2 x RJ-45 10/100/1000 Mbps (Intel® i211-AT)
PoE (PSE, Power Sourcing Equipment)	4 x configurable RJ-45 PoE output max. 30W <ul style="list-style-type: none"> <li>• PoE (802.3af 15.4W/port)</li> <li>• PoE+ (802.3at 30W/port)</li> </ul>	N/A
USB	2 x USB 3.0	2 x USB 2.0
DIO	1 x DB9 8-bit programmable DIO	1 x 8-bit programmable DIO
Expansion Interface	1 x Full-size mPCIe Card slot w/ SIM slot 1 x Half-size mPCIe Card slot	1 x Full-size Rev.1.2 mPCIe Card slot 1 x Half-size Rev.1.2 mPCIe Card slot 1 x SIM card slot
Storage	1 x Internal 2.5" SATA drive (9.5 mm height) 1 x Half-sized mSATA (occupied mPCIe card slot)	1 x mSATA (occupied mPCIe card slot)
RAID function	N/A	N/A
Watchdog Timer	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.
Power Supply	General: 1 x Terminal block, 9-36 VDC, (typical:12/24V) Vehicle: 1 x Terminal block, 9-36 VDC, w/ smart ignition (typical:12/24V)	Vehicle: 12 or 24 VDC typical (support Smart Ignition, terminal block) AT Mode: 9 - 36 VDC
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral
Mounting	Wall mount, DIN-rail	Wall mount, DIN-rail
Dimensions (W x D x H) without Mounting	Non-PoE SKU: 48 x 110.4 mm x 155 mm (1.89" x 4.33" x 6.1") PoE SKU: 67 x 110.4 x 155 mm (2.63" x 4.33" x 6.1")	31 x 100.4 x 125 mm (1.22" x 3.93" x 4.92")
Weight (net/gross)	Non-PoE SKU: 0.51 kg (1.12 lb)/0.79 kg (1.74 lb) PoE SKU: 0.84 kg (1.85 lb)/1.12 kg (2.47 lb)	0.3 kg (0.67 lb)/0.45 kg (0.99 lb)
Certifications	CE (Class A), FCC (Class A); ISO 7637-2 compliant	CE (Class A), FCC (Class A); ISO 7637-2 compliant
EOS Support	Windows® 10 64-bit, Ubuntu 18.04	Windows® 10 64-bit, Ubuntu 18.04
Software Support	AXView	AXView

# Certification Guide



Model Name	tBOX110	tBOX300	tBOX324	tBOX500	tBOX510	tBOX520	tBOX810
CE (Class A)	V	V	V	V	V	V	V
FCC	V	V	V	V	V	V	V
EN 50155	V	V	V	V	V	V	V
EN 50121-3-2	V	V	V	V	V	V	V
E-Mark	-	-	V	-	-	-	V
ISO 7637-2 (E-Mark)	△	-	V	△	-	△	V
EN 45545-2*	V	△	V	V	V	V	V
IEC 60945	-	-	V	V	-	-	V
DNV 2.4	-	-	V	-	-	-	V

V: Certified △: Compliant



Model Name	UST100	UST200	UST210	UST500	UST510
CE (Class A)	V	V	V	V	V
FCC	V	V	V	V	V
E-Mark	-	-	-	V	V
ISO 7637-2 (E-Mark)	△	△	△	V	V

V: Certified △: Compliant

# tBOX810-838-FL

Fanless Embedded System with Intel Atom® Processor E3845/E3827 for Railway, Vehicle, and Marine PC



▲ Front view



Mic-in, Line-out, Line-in (optional)

M12/Phoenix DC power input



Antenna opening

▲ Rear view

M12/RJ-45 GbE LAN



## Features

- CE, FCC, EN 50155, EN 45545-2, E-Mark, DNV 2.4 and IEC 60945 certified
- Intel Atom® processor E3845 or E3827
- Fanless and Wide operating temperatures from -40°C to +70°C
- DDR3L-1333 4GB memory onboard
- Compact size with multiple I/Os
- Intelligent solution of vehicle power management (ACC ignition)
- 2 PCI Express Mini Card slots and 1 SIM card slot



## Specifications

Standard Color	Silver black
Construction	Aluminum extrusion and heavy-duty steel, IP40
CPU	Intel Atom® E3845 4C @1.91 GHz, TDP: 10W Intel Atom® E3827 2C @1.75 GHz, TDP: 8W
Chipset	SoC integrated
System Memory	DDR3L-1333, 4GB memory onboard
BIOS	AMI
System I/O Outlet	Serial 2 x DB9 serial console or RS-232/422/485 Display 1 x VGA (supports up to 1920 x 1080 @60Hz) Audio 1 x Mic-in, 1 x Line-out, 1 x Line-in (optional, occupied 1 x PCIe Mini Card slot) Ethernet Railway: 2 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT) USB 2 x USB 2.0 DIO 1 x DB9 8-bit programmable DIO Others 1 x Reset button 1 x Remote switch 4 x Antenna opening
Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot: • 1 x USB/PCIe with SIM socket • 1 x mSATA/USB/PCIe
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.

## Specifications

Power	Power Supply	Railway: 1 x M12 DC-in, 9 to 36 VDC (typical: 24VDC) Vehicle: 1 x terminal block DC-in, (typical: 12/24 VDC) with ACC ignition Marine: 1 x terminal block /M12 DC-in, 9 to 36 VDC (typical: 24 VDC)
	Power Consumption	24V, 1A
System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power 2 x LED indicator for LAN activity 2 x Programmable	
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 108 mm (4.25") (D) x 44 mm (1.73") (H) (without wall mount)	
Mounting	Wall mount, DIN-rail	
Weight (net/gross)	0.77 kg (1.70 lb)/2 kg (4.41 lb)	
Certifications	CE (Class A), FCC (Class A), EN 50155, EN 45545-2**, E-Mark, DNV 2.4 and IEC 60945 certified	
EMC	CE/FCC	EN 55022 (Class A), EN 55024, FCC part 15 B (Class A)
	EN 50155	EN 50121-3-2, IEC 62236-3-2
	E-Mark	ECE-R10
	DNV 2.4/IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating)	
	1 Grms w/ HDD (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	
Shock	EN 50155	EN (IEC) 61373 category 1 class B, half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)
	DNV 2.4	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-30
	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, Windows® 8, Windows® 7 64/32-bit, VxWorks7, Ubuntu 15.10	
Software Support	AXView	




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

\*\*For EN 45545-2, test report is available exclusively

\*\*\* Not available on tBOX810 w/Audio SKU, see ordering information

## Ordering Information

### System

tBOX810-838-FL-E3827/E3845-MRDC (P/N: E26N810106*) for E3845 (P/N: E26N810107*) for E3827 (P/N: E26N810109) for E3845 & Audio  *without Audio & CAN connector	Fanless railway grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 M12 GbE LANs, M12 DC-in, 2 USB, VGA, 2 COM, DIO, audio mic-in/line-in/line-out, and 24 VDC	
tBOX810-838-FL-E3827/E3845-TVDC/MVDC (P/N: E26N810104*) for E3845 & RJ-45 LANs (P/N: E26N810105*) for E3827 & RJ-45 LANs (P/N: E26N810110) for E3845 & Audio & RJ-45 LANs (P/N: E26N810122) for E3827 & Audio & RJ-45 LANs (P/N: E26N810100*) for E3845 & M12 DC-in (P/N: E26N810102*) for E3827 & M12 DC-in *without Audio & CAN connector	Fanless vehicle grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 RJ-45/M12 GbE LANs, terminal block/ M12 DC-in, 2 USB, VGA, 2 COM, DIO, CAN, audio mic-in/line-in/line-out, with ACC ignition, and 12/24 VDC	
tBOX810-838-FL-E3827/E3845-TMDC (P/N: E26N810114*) for E3845 (P/N: E26N810119) for E3827 & CAN (P/N: E26N810120) for E3845 & CAN *without Audio & CAN connector	Fanless marine grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 RJ-45 GbE LANs, terminal block DC-in, 2 USB, VGA, 2 COM, DIO, CAN, and 24 VDC	


\*MRDC: M12 DC-in connector, railway SKU, DC voltage input

\*TVDC: terminal block DC-in connector, vehicle SKU, DC voltage input

\*MVDC: M12 DC-in connector, vehicle SKU, DC voltage input

\*TMDC: terminal block DC-in connector, marine SKU, DC voltage input

### Optional

Anti-vibration Kit (P/N: 8816N1000A0E)	For in-vehicle/rolling stock applicable systems which improves HDD/SSD stability		
Communication Modules	8816N3239A0E	3G UC20GKit for tBOX/UST (3G ANT) (E)	
	8816N3235A0E	3G/GPS UC20GKit for tBOX (3G/GPS ANT)	
	8812C300CA0E	AP12356WT Wi-Fi kit for ICO300 SFP (E)	
	886N32410A0E	MCR8822CE-P WiFi KIT(20)for tBOX(E)	
	8816N8105A0E	GPS kit M8N w/o adapter for tBOX SFP (E)	
	886N32310A0E	LTE LE910C4-AP KIT(20)for tBOX(E)	
AC to DC Adapter	886N32311A0E	LTE LE910C4-EU KIT(20)for tBOX(E)	
	886N32312A0E	LTE LE910C4-NF KIT(20)for tBOX(E)	
	509000001500	PWS FSP120-AAAN3(9NA1206647) FSP 120W	
	50966224010E	Adapter 24V 90W, M12 A-code 5P FSP090AAAN3	

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

## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

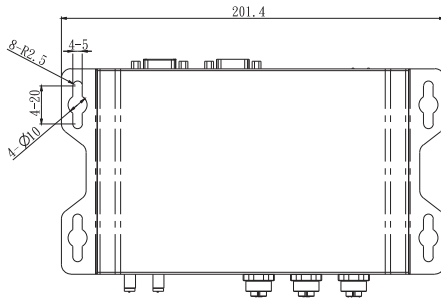
RPP (reverse polarity protection)

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

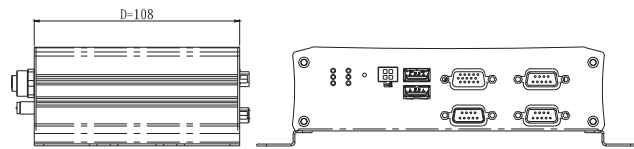
Setting for in-vehicle battery protection: system will be automatically turned down at low voltage level

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

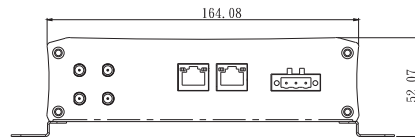
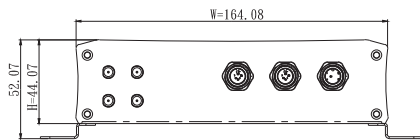
## Dimensions



#M12 LAN/DC-in



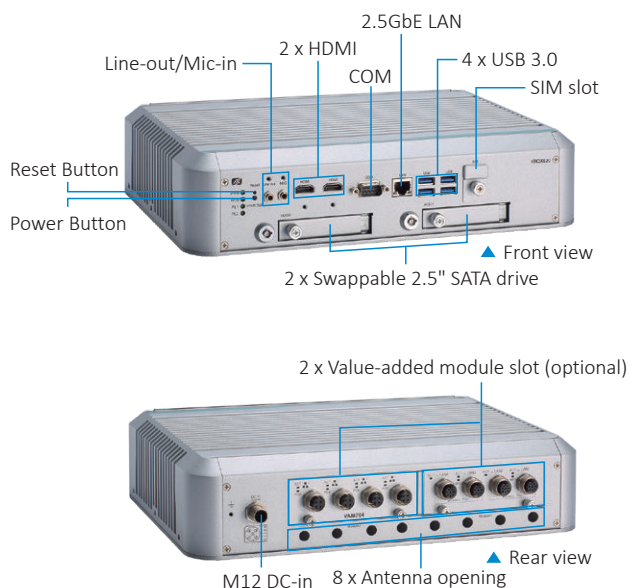
#RJ-45 LAN, Terminal block DC-in





# tBOX520 NEW

Fanless Embedded System with 12th Gen Intel® Core™ i7/i5/i3 Processor for Railway



## Features

- CE, LVD, FCC, EN 50155, EN 45545-2 certified
- 12th gen Intel® Core™ i7/i5/i3 or Celeron® processor (Alder Lake-U)
- 24 to 110 VDC for Railway applications
- Value-added modules available for various I/O requirements (COM/LAN/DIO/PoE/CAN/BNC)
- Intelligent solution of power management (ACC ignition)
- 2 swappable 2.5" SATA drives



## Specifications

Standard Color	Silver	
Construction	Aluminum extrusion and heavy-duty steel, IP30	
CPU	12th gen Intel® Core™ i7/i5/i3 or Celeron® processor	
Chipset	SoC integrated	
System Memory	2 x DDR5-4800 SO-DIMM, up to 64GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlets	Serial	1 x DB9 serial console or RS-232/422/485
	Display	2 x Type A HDMI 1.4b (4K)
	Audio	1 x Mic-in, 1 x Line-out
	Ethernet	1 x RJ-45 2.5GbE (Intel® i226-IT)
	USB	4 x USB 3.0
	Others	1 x Reset button 8 x Antenna opening 1 x Power button
Expansion Interface	1 x M.2 M key 2280 NVMe SSD (PCIe x4)	
	1 x M.2 B key for 5G/WiFi 6/BT (PCIe/USB)	
	1 x Full-size Rev.1.2 mPCIe for LTE/WiFi/BT (PCIe/USB)	
	2 x nano SIM slot 1 x M.2 A+E key for WiFi 6/BT (PCIe/USB)	
Storage	SATA Drive	2 x Swappable 2.5" SATA drive (9.5 mm height), Intel® RAID 0/1 supported
Watchdog Timer	255 levels, 1 to 255 sec.	

## Specifications

Power	Power Supply	Railway: 1 x M12, 24 to 110 VDC
	Power Consumption	TBD
PoE (PSE, Power Sourcing Equipment)	PoE Performance	Up to 8 configurable M12/RJ-45 PoE <ul style="list-style-type: none"> <li>• PoE (802.3af 15.4W/port)</li> <li>• PoE+ (802.3at 30W/port)</li> </ul> To be used with VAM PoE * Internal PoE Power
System Indicator	1 x LED indicator for power 1 x LED indicator for SATA drive activity 2 x Programmable	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with 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	TBD	
Certifications	CE (Class A), LVD, FCC (Class A), EN 50155**, EN 45545-2***	
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 60950-1	
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1.5 Grms w/ HDD (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 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 16.04, Windows® 11 64-bit	
Software Support	AXView	

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

\*\* PoE series is compliant with EN 50155








\*\*\* EN 45545-2 test report is available exclusively

## Ordering Information


### System

iBOX520-ADL-MR (P/N: TBD)	Fanless railway embedded system, Intel® Core™ processor, 4 USB 3.0, 2 HDMI, 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
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### Value-Added Modules (VAMs)

VAM100 (P/N: E277100100)	4 x Terminal block 4-wire isolated RS-232/422/485 COM Isolation voltage: 2 kV	
VAM101 (P/N: E277101100)	4 x Terminal block isolated CANbus 2.0A/B Isolation voltage: 2 kV	
VAM200 (P/N: E277200100)	1 x Terminal block isolated DIO 8-in/8-out Isolation voltage: 2 kV	
VAM400 (P/N: E277400100)	4 x BNC video-in & 1 x BNC audio-in • Supports FPS: NTSC/PAL (up to 120fps @960/720 x 480 / 100fps @960/720 x 576), H.264 video recording 2 x Full size Rev. 1.2 PCI Express Mini Card slot • 1 x USB with SIM socket • 1 x USB/PCIe with SIM socket (occupied by 1 x Capture Card)	
VAM600 (P/N: E277600100)	2 x Full size Rev. 1.2 PCI Express Mini Card slot • 1 x USB/PCIe with SIM socket • 1 x USB with SIM socket 4 x Antenna opening	
VAM700/VAM701 (P/N: E277700100/E277701100) VAM702/VAM703 (P/N: E277702100/E277703100) VAM704/VAM705 (P/N: E277704100/E277705100) VAM706/VAM707 (P/N: E277706100/E277707100) VAM708 (P/N: E277708101)	VAM700/701(PoE): 4 x M12 A-code GbE (PoE optional*) VAM702/703(PoE): 4 x RJ-45 GbE (PoE optional*) VAM704/705(PoE): 4 x M12 D-code 10/100 Mbps Ethernet (PoE optional*) VAM706/707(PoE): 4 x M12 X-code GbE (PoE optional*) VAM708 : 4 x M12 A-code w/ LAN Bypass *PSU120-259 is required if select VAM701/703/705/707	
VAM900 (P/N: E277900100)	2 x Full-size Rev.1.2 PCI Express Mini Card slot • 2 x USB with SIM socket 1 x Half-size Rev.1.2 PCI Express Mini Card slot • 1 x PCIe 1 x Terminal block 4-wire isolated RS-232/422/485 COM (isolation Voltage: 2 kV) 1 x Terminal block isolated CANBus 2.0A/B (isolation Voltage: 2 kV) 1 x Terminal block isolated DIO 8-in/8-out (isolation Voltage: 1.5 kV)	

### Optional

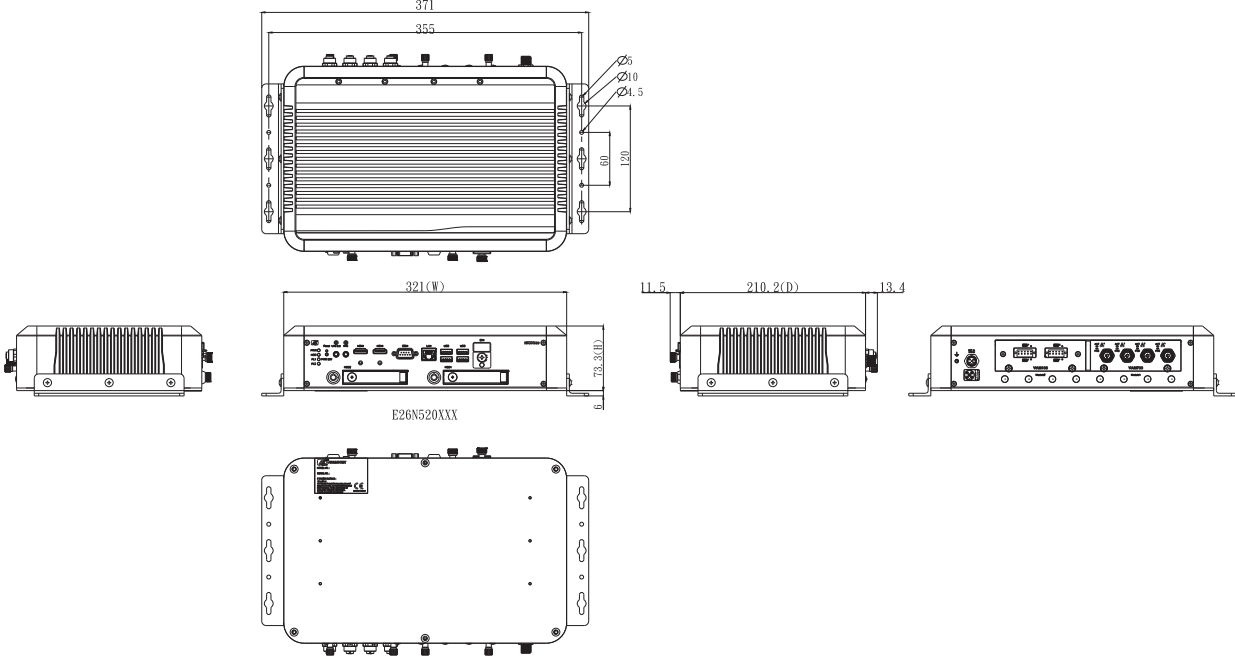
Anti-vibration Kit (P/N: 8816N5008A0E)	For in-vehicle/rolling stock which improves HDD stability in NVR applications		
AC to DC Adapter	509000001500 50966224010E	PWS FSP120-AAAN3(9NA1206647) FSP 120W FSP090AAAN3	

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

## Power Protection

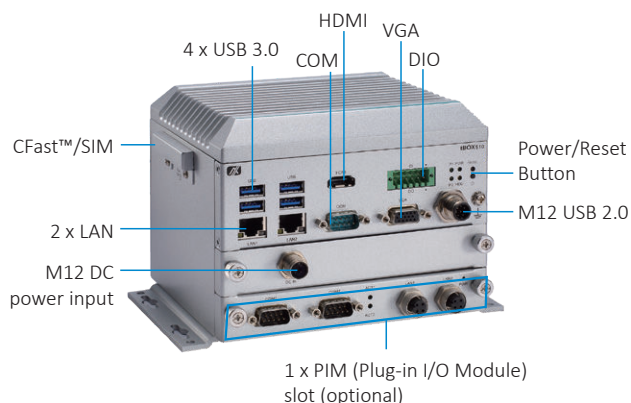
OCP (over current protection)  
OVP (over voltage protection)  
UVP (under voltage protection)  
RPP (reverse polarity protection)

# Dimensions



# tBOX510-518-FL

Compact Size Fanless Embedded System with 7th Gen Intel® Core™ i7/i5/i3 & Celeron® Processor for Railway PC



## Features

- CE, LVD, FCC, EN 50155, and EN 45545 certified and EN 50124 compliant
- 7th gen Intel® Core™ i7/i5/i3 or Celeron® processor
- Fanless and wide operating temperatures from -40°C to +70°C
- 24 to 110 VDC wide range power input for railway applications
- Compact size with 1 PIM (Plug-in I/O Module) slot for various I/O requirements
- Single-sided I/O design for easy maintenance



## 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	1 x DDR4-2133 SO-DIMM, up to 16GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlets	Serial	1 x DB9 serial console or RS-232/422/485
	Display	1 x HDMI 4K x 2K @24Hz 1 x VGA (up to 1920 x 1200 @60Hz)
	Ethernet	2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT)
	USB	1 x M12 A-code USB 2.0 (with 2 x USB 2.0) 4 x USB 3.0
	DIO	1 x Terminal block isolated DIO 4-in/4-out (isolation voltage: 2 kV)
	Others	1 x Reset button 4 x Antenna opening
Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot: • 2 x USB/PCIe 1 x PIM (Plug-in I/O Module) slot 1 x External SIM card slot	
Storage	SATA Drive	1 x Swappable 2.5" SATA drive (9.5 mm height)
	CFast™	1 x CFast™
Watchdog Timer	255 levels, 1 to 255 sec.	

## Specifications



Power	Power Supply	1 x M12, 24 to 110 VDC (S2 optional)
	Power Consumption	24-110V@2.9-0.55A (with PIM901T)
System Indicator	1 x LED indicator for power 1 x LED indicator for SATA drive activity 2 x Programmable	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*	
Humidity	0% to 95%, non-condensing	
Dimensions	119.8 mm (4.72") (W) x 124.8 mm (4.91") (D) x 155 mm (6.1") (H) (without wall mount)	
Mounting	Wall mount & DIN-rail (optional)	
Weight	TBD	
Certifications	CE, LVD, FCC, EN 50155, and EN 45545** certified and EN 50124 compliant	
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 60950-1	
Vibration Endurance	3 Grms w/ SSD & wall mount (5 to 500Hz, X/Y/Z direction; random, operating) 2 Grms w/ SSD & DIN-rail (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant (for wall mount)	
	EN 50155	EN 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, Linux	
Software Support	AXView	

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

\*\*For EN 45545-2, test report is available exclusively

## Ordering Information

### System


tBOX510-518-FL-i7-24-110MRDC (P/N: E26N510104)	Fanless railway embedded system with Intel® Core™ i7-7600U processor, 4 USB 3.0, 1 M12 A-coded USB 2.0, HDMI, VGA, LAN, serial console or RS-232/422/485, DIO, 2.5" SATA tray, M12 A-code DC-in, and 24 to 110 VDC	
tBOX510-518-FL-Cel-24-110MRDC (P/N: E26N510101)	Fanless railway embedded system with Intel® Celeron® 3965U processor, 4 USB 3.0, 1 M12 A-coded USB 2.0, HDMI, VGA, LAN, serial console or RS-232/422/485, DIO, 2.5" SATA tray, M12 A-code DC-in, and 24 to 110 VDC	

\*MRDC: M12 DC-in connector, railway SKU, DC voltage input

### PIM901T

PIM901T	2 x Isolated RS-232/422/485 COM 2 x M12 D-coded 10/100 Mbps Ethernet Isolation voltage: 2 kV	
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## Optional

Anti-vibration Kit (P/N: 8816N100030E)	For in-vehicle/rolling stock applicable systems to improve HDD/SSD stability		
DIN-Rail Kit (P/N: 8816N510010E)	DIN-Rail Kit for tBOX510-518		
Communication Modules	8812C300GA0E	3G UC20GKit tBOX/ICO(20) (E)	
	8812C300HA0E	3G/GPS UC20GKit tBOX/ICO(20) (E)	
	8812C300BA0E	AP12356 WiFi Kit for ICO300 series SFP (E)	
	8812C300CA0E	AP12356WT Wi-Fi Kit for ICO300 SFP (E)	
AC to DC Adapter	50966224010E	Adapter 24V 90W, M12 A-code 5P FSP090AAAAN3	

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

## Power Protection

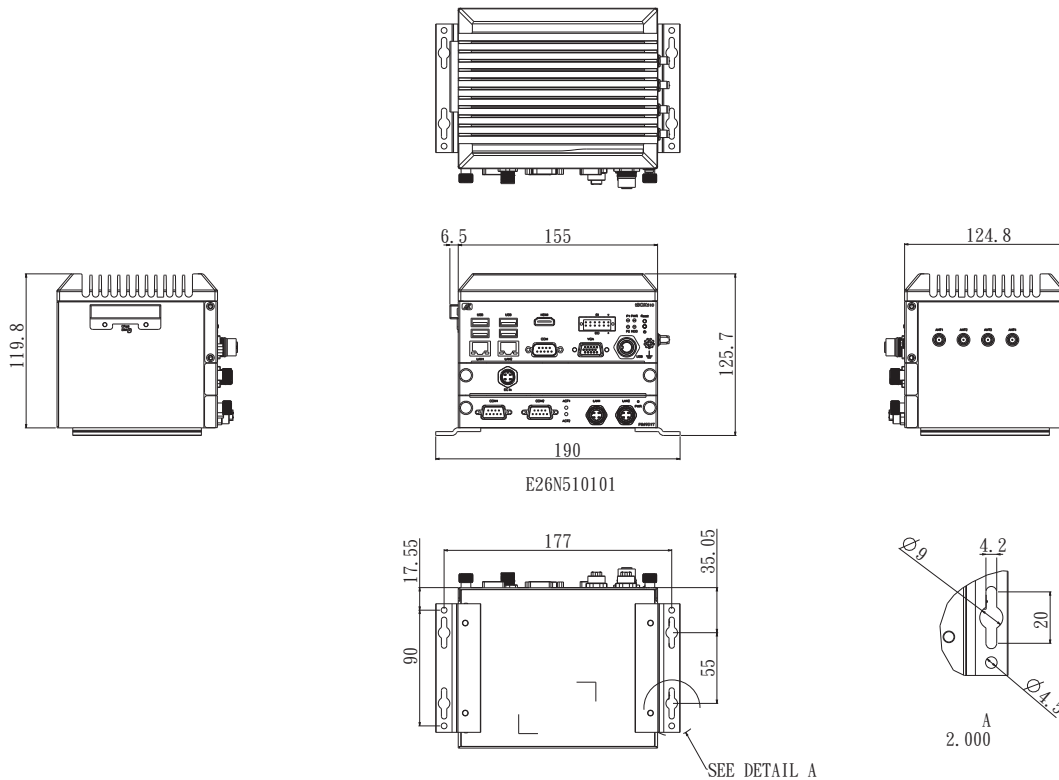
OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

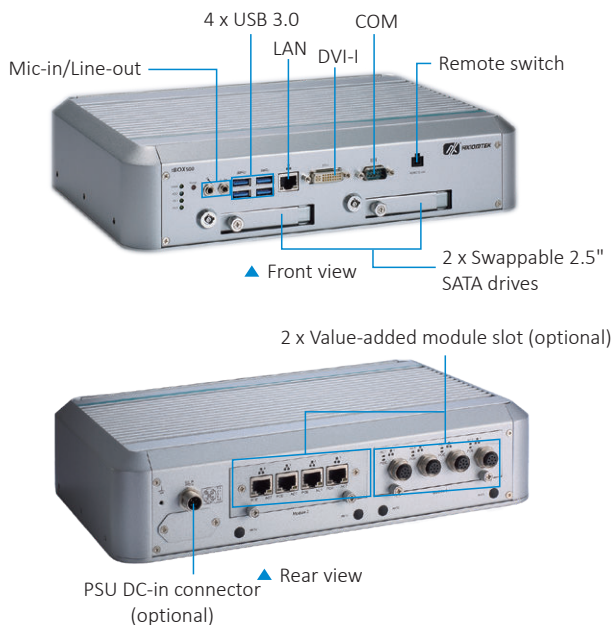
RPP (reverse polarity protection)

## Dimensions



# tBOX500-510-FL

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



## Features

- CE, LVD, FCC, EN 50155, EN 45545-2, and IEC 60945 certified; ISO 7637-2 compliant
- 7th gen Intel® Core™ i7/i5/i3 or Celeron® processor
- Power supply:
  - 24 to 110 VDC for Railway version
  - 12/24 VDC for Vehicle version
  - 24 VDC for Marine version
- PoE PSU (optional), up to 120W power supply
- Value-added modules available for various I/O requirements (COM/LAN/DIO/PoE/CAN/BNC)
- 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 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, up to 32GB
BIOS	AMI
TPM	TPM 2.0
System I/O Outlets	Serial 1 x DB9 serial console or RS-232/422/485 Display 1 x DVI-I (up to 1920 x1200 @60Hz, 1 x VGA & 1 x DVI included) Audio 1 x Mic-in, 1 x Line-out 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 4 x Antenna opening
Expansion Interface	3 x Full-size Rev.1.2 PCI Express Mini Card slot <ul style="list-style-type: none"> <li>• 1 x mSATA/PCIe</li> <li>• 2 x USB/PCIe with SIM socket</li> </ul> 2 x Value-added module slot
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.



## Specifications

Power	Power Supply	Railway: 1 x M12, 24 to 110 VDC Vehicle: 1 x terminal block, 12/24 VDC with ACC ignition Marine: 1 x terminal block, 24 VDC
	Power Consumption	24V- 110V, 3A- 0.6A 24V- 110V, 5.5A- 1.6A with internal PoE PSU
PoE (PSE, Power Sourcing Equipment)	External PoE Power Source	1 x Terminal block PoE power-in with PSU120-259 (optional, see ordering info)
	PoE Performance	Up to 8 x configurable M12/RJ-45 PoE output max. 120W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port)</li> <li>PoE+ (802.3at 30W/port)</li> </ul> To be used with VAM PoE * Internal PoE Power * External PoE Power with PSU120-259 (optional, see ordering info)
System Indicator	1 x LED indicator for power 1 x LED indicator for SATA drive activity 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	3.5 kg (7.72 lb)/5.1 kg (11.24 lb)	
Certifications	CE (Class A), LVD, FCC (Class A), EN 50155**, EN 45545-2***, and IEC 60945 certified; ISO 7637-2 compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
LVD	EN 60950-1	
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1.5 Grms w/ HDD (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 61373 category 1 class B
	IEC 60945	IEC 60068-2-6
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 16.04	
Software Support	AXView	





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

\*\* Internal PoE Series is compliant with EN 50155

\*\*\* For EN 45545-2, test report is available exclusively

## Ordering Information

### System

tBOX500-510-FL-Celeron/i3/i5/i7-24-110MRDC (P/N: E26N500100) for i7-7600U (P/N: E26N500101) for i5-7300U (P/N: E26N500102) for i3-7100U (P/N: E26N500103) for 3965U	Fanless railway embedded system, 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	
tBOX500-510-FL-Celeron/i3/i5/i7-TVDC (P/N: E26N500104) for i7-7600U (P/N: E26N500105) for i5-7300U (P/N: E26N500106) for i3-7100U (P/N: E26N500107) for 3965U	Fanless vehicle embedded system, 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, terminal block DC-in, and ACC ignition *Not supporting PoE function	
tBOX500-510-FL-Celeron/i3/i5/i7-TMDC (P/N: E26N500108) for i7-7600U (P/N: E26N500109) for i5-7300U (P/N: E26N500110) for i3-7100U (P/N: E26N500111) for 3965U	Fanless marine embedded system, 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, and terminal block DC-in	
tBOX500-510-FL-i5-POE-24-110MRDC (P/N: E26N500115)**	Fanless railway embedded system, Intel® Core™ i5-7300U 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, 24 to 110 VDC and Internal PoE PSU	






\*MRDC: M12 DC-in connector, railway SKU, DC voltage input



\*TVDC: Terminal block DC-in connector, vehicle SKU, DC voltage input

\*TMDC: Terminal block DC-in connector, marine SKU, DC voltage input


\*\*Internal PoE SKU, please refer to the User's Manual for more information.

### Value-Added Modules (VAMs) & PSU120-259

VAM100 (P/N: E277100100)	4 x Terminal block 4-wire isolated RS-232/422/485 COM Isolation voltage: 2 kV	
VAM101 (P/N: E277101100)	4 x Terminal block isolated CANbus 2.0A/B Isolation voltage: 2 kV	
VAM200 (P/N: E277200100)	1 x Terminal block isolated DIO 8-in/8-out Isolation voltage: 2 kV	
VAM400 (P/N: E277400100)	4 x BNC video-in & 1 x BNC audio-in • Supports FPS: NTSC/PAL (up to 120fps @960/720 x 480 / 100fps @960/720 x 576), H.264 video recording 2 x Full size Rev. 1.2 PCI Express Mini Card slot • 1 x USB with SIM socket • 1 x USB/PCIe with SIM socket (occupied by 1 x Capture Card)	
VAM600 (P/N: E277600100)	2 x Full size Rev. 1.2 PCI Express Mini Card slot • 1 x USB/PCIe with SIM socket • 1 x USB with SIM socket 4 x Antenna opening	
VAM700/VAM701 (P/N: E277700100/E277701100) VAM702/VAM703 (P/N: E277702100/E277703100) VAM704/VAM705 (P/N: E277704100/E277705100) VAM706/VAM707 (P/N: E277706100/E277707100) VAM708 (P/N: E277708101)	VAM700/701(PoE): 4 x M12 A-code GbE (PoE optional*) VAM702/703(PoE): 4 x RJ-45 GbE (PoE optional*) VAM704/705(PoE): 4 x M12 D-code 10/100 Mbps Ethernet (PoE optional*) VAM706/707(PoE): 4 x M12 X-code GbE (PoE optional*) VAM708 : 4 x M12 A-code w/ LAN Bypass *PSU120-259 is required if select VAM701/703/705/707	

VAM900 (P/N: E277900100)	<ul style="list-style-type: none"> <li>2 x Full-size Rev.1.2 PCI Express Mini Card slot</li> <li>• 2 x USB with SIM socket</li> </ul> 1 x Half-size Rev.1.2 PCI Express Mini Card slot <ul style="list-style-type: none"> <li>• 1 x PCIe</li> </ul> 1 x Terminal block 4-wire isolated RS-232/422/485 COM (isolation Voltage: 2 kV) 1 x Terminal block isolated CANBus 2.0A/B (isolation Voltage: 2 kV) 1 x Terminal block isolated DIO 8-in/8-out (isolation Voltage: 1.5 kV)	
PSU120-259 series Railway-24VDC (P/N: E276120101) Railway-48VDC (P/N: E276120102) Railway-96/110VDC (P/N: E276120103) Marine-24VDC (P/N: E276120104)	Fanless IEC 60945 certified/EN 50155 compliant DC-DC adapter <ul style="list-style-type: none"> <li>• Supports 24/48/96/110V-in</li> <li>• Power output max. 120W</li> <li>• -40°C to +60°C (-40°F to +140°F)</li> </ul>	

### Optional

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)	
	8816N3235A0E	3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E)	
	8816N5003A0E	AP12356 WT Wi-Fi kit for tBOX/UST SFP (E)	
	886N50014A0E	MCR8822CE-P WiFi KIT(30)for tBOX(E)	
	886N50010A0E	LTE LE910C4-AP KIT(30)for tBOX(E)	
	886N50013A0E	LTE LE910C4-AP w/GPS(30) for tBOX(E)	
	886N50011A0E	LTE LE910C4-EU KIT(30)for tBOX(E)	
	886N50012A0E	LTE LE910C4-NF KIT(30)for tBOX(E)	
AC to DC Adapter	509000001500	PWS FSP120-AAAN3(9NA1206647) FSP 120W	
	50966224010E	Adapter 24V 90W, M12 A-code 5P FSP090AAAN3	

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

## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

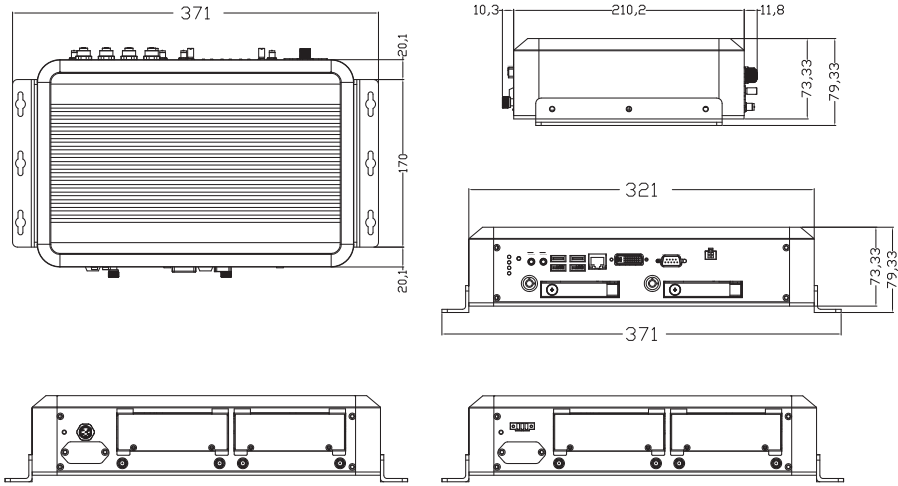
RPP (reverse polarity protection)

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



#M12 DC-in  
E26N500100

#Terminal block DC-in  
E26N500104

# tBOX324-894-FL

Fanless Embedded System with 7th/6th Gen Intel® Core™ i7/i5/i3 & Celeron® Processor for Railway, Vehicle, and Marine PC



▲ Front view



▲ Rear view

## Features

- CE, LVD, FCC, EN 50155, EN 45545-2, E-Mark, DNV 2.4 and IEC 60945 certified
- 7th/6th gen Intel® Core™ i7/i5/i3 & Celeron® processors
- Fanless and wide operating temperatures from -40°C to +70°C
- 2 DDR4-1866/2133 SO-DIMM for up to 32GB of memory
- Typical 12/24/110 VDC power supply
- Intelligent solution of vehicle power management (ACC ignition)
- 2 swappable 2.5" SATA drives
- 3 PCI Express Mini Card slots and 1 SIM card slot



## Specifications

Standard Color	Silver black																
Construction	Aluminum extrusion and heavy-duty steel, IP30																
CPU (supports Kaby Lake-U & Skylake-U platform)	Intel® Core™ i7-7600U 2.8 GHz*/i7-6600U 2.6 GHz* Intel® Core™ i5-7300U 2.6 GHz*/i5-6300U 2.4 GHz* Intel® Core™ i3-7100U 2.4 GHz*/i3-6100U 2.3 GHz* Intel® Celeron® 3965U 2.2 GHz*/3955U 2.0 GHz* *2 Core @TDP: 15W																
Chipset	SoC integrated																
System Memory	2 x DDR4-1866/2133 SO-DIMM, up to 32GB																
BIOS	AMI																
System I/O Outlet	<table border="0"> <tr> <td>Serial</td> <td>1 x DB9 isolated RS-232/422/485 2 x Terminal block isolated RS-232/422/485 (isolation voltage: 2 kV)</td> </tr> <tr> <td>CANBus</td> <td>1 x DB9 isolated CANBus 2.0 A/B (isolation voltage: 2 kV)</td> </tr> <tr> <td>Display</td> <td>1 x DVI-I (up to 1920 x 1200 @60Hz, 1 x VGA and 1 x DVI-D included) 1 x VGA</td> </tr> <tr> <td>Audio</td> <td>1 x Mic-in, 1 x Line-out</td> </tr> <tr> <td>Ethernet</td> <td>Railway: 4 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 4 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT)</td> </tr> <tr> <td>USB</td> <td>4 x USB 3.0</td> </tr> <tr> <td>DIO</td> <td>1 x Terminal block isolated DIO 4-in/4-out (isolation voltage: 2 kV)</td> </tr> <tr> <td>Others</td> <td>1 x Reset button 1 x Remote switch 3 x Antenna opening</td> </tr> </table>	Serial	1 x DB9 isolated RS-232/422/485 2 x Terminal block isolated RS-232/422/485 (isolation voltage: 2 kV)	CANBus	1 x DB9 isolated CANBus 2.0 A/B (isolation voltage: 2 kV)	Display	1 x DVI-I (up to 1920 x 1200 @60Hz, 1 x VGA and 1 x DVI-D included) 1 x VGA	Audio	1 x Mic-in, 1 x Line-out	Ethernet	Railway: 4 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 4 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT)	USB	4 x USB 3.0	DIO	1 x Terminal block isolated DIO 4-in/4-out (isolation voltage: 2 kV)	Others	1 x Reset button 1 x Remote switch 3 x Antenna opening
Serial	1 x DB9 isolated RS-232/422/485 2 x Terminal block isolated RS-232/422/485 (isolation voltage: 2 kV)																
CANBus	1 x DB9 isolated CANBus 2.0 A/B (isolation voltage: 2 kV)																
Display	1 x DVI-I (up to 1920 x 1200 @60Hz, 1 x VGA and 1 x DVI-D included) 1 x VGA																
Audio	1 x Mic-in, 1 x Line-out																
Ethernet	Railway: 4 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 4 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT)																
USB	4 x USB 3.0																
DIO	1 x Terminal block isolated DIO 4-in/4-out (isolation voltage: 2 kV)																
Others	1 x Reset button 1 x Remote switch 3 x Antenna opening																
Expansion Interface	3 x Full-size Rev.1.2 PCI Express Mini Card slot: • 2 x USB/PCIe • 1 x USB/PCIe with SIM socket																

## Specifications





Storage	SATA Drive	2 x Swappable 2.5" SATA drive (9.5 mm height), Intel® RAID 0/1 supported
	CFast	1 x CFast™
Watchdog Timer	255 levels, 1 to 255 sec.	
Power	Power Supply	Railway: 1 x M12, 24/110 VDC Vehicle: 1 x terminal block, 12/24 VDC with ACC ignition Marine: 1 x terminal block, 24 VDC
	Power consumption 24V/2.2A, 110V/0.7A	
System Indicator	4 x LED indicator for LAN activity 4 x LED indicator for LAN linked 1 x LED indicator for SATA drive activity 1 x LED indicator for power	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*	
Humidity	0% to 95%, non-condensing	
Dimensions	288.5 mm (11.36") (W) x 211.3 mm (8.32") (D) x 85.75 mm (3.38") (H) (without wall mount)	
Mounting	Wall mount	
Weight (net/gross)	5 kg (11.02 lb)/6.65 kg (14.66 lb)	
Certifications	CE (Class A), FCC (Class A), EN 50155, EN 45545-2**, E-Mark, DNV 2.4 and IEC 60945 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
	DNV 2.4	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6
	IEC 60945	CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
	E-Mark	ECE-R10
LVD	EN 60950-1	
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms w/ HDD (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
	DNV 2.4/IEC 60945	IEC 60068-2-6
Shock (operating)	EN 50155	EN (IEC) 61373 category 1 class B, half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)
	DNV 2.4	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-30
	IEC 60945	
EOS Support	Windows® 10 64-bit, Windows® 7 64/32-bit (for 6th gen Intel® CPU), Ubuntu 18.04	
Software Support	AXView	

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

\*\*For EN 45545-2, test report is available exclusively

## Ordering Information

### Standard

tBOX324-894-FL-i5/i7-DIO-24MRDC-CAN (P/N: E26N324103) for i7-7600U (P/N: E26N324102) for i5-7300U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7/i5 for railway PC, 4 USB 3.0, DVI-I, 4 M12 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, M12 DC-in, and 24/110 VDC	
tBOX324-894-FL-i3/i7-DIO-110MRDC-CAN-G (P/N: E26N324121) for i7-7600U (P/N: E26N324119) for i3-7100U		Kaby Lake Platform 
tBOX324-894-FL-Cel/i3/i5/i7-DIO-110MRDC-CAN-G (P/N: E26N324133) for i7-6600U (P/N: E26N324132) for i5-6300U (P/N: E26N324131) for i3-6100U (P/N: E26N324130) for 3955U	Fanless embedded system with 6th gen Intel® Skylake Core™ i7/i5/i3 & Celeron® for railway PC, 4 USB 3.0, DVI-I, 4 M12 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, M12 DC-in, and 110 VDC	Skylake Platform 
tBOX324-894-FL-i7-DIO-TVDC-CAN-GND (P/N: E26N324112) for i7-7600U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7 for vehicle PC, 4 USB 3.0, DVI-I, 4 RJ-45 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, terminal block DC-in, ACC ignition, and 12/24 VDC	
tBOX324-894-FL-i3/i5/i7-DIO-TMDC-CAN-GND (P/N: E26N324117) for i7-7600U (P/N: E26N324115) for i5-7300U (P/N: E26N324114) for i3-7100U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7/i5/i3 & for marine PC, 4 USB 3.0, DVI-I, 4 RJ-45 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, terminal block DC-in, and 24 VDC	


\*MRDC: M12 DC-in connector, railway SKU, DC voltage input

\*TVDC: terminal block DC-in connector, vehicle SKU, DC voltage input

\*TMDC: terminal block DC-in connector, marine SKU, DC voltage input

\*GND or G: with grounding opening & screw

### Optional

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)	
	8816N3235A0E	3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E)	
	8812C1201A0E	AP12356 with WT Wi-Fi kit for tBOX/ICO SFP (E)	
	886N32410A0E	MCR8822CE-P WiFi KIT(20)for tBOX(E)	
	881745001A0E	GPS Kit M8N w/o adapter for tBOX/UST SFP (E)	
	886N32310A0E	LTE LE910C4-AP KIT(20)for tBOX(E)	
	886N32311A0E	LTE LE910C4-EU KIT(20)for tBOX(E)	
	886N32312A0E	LTE LE910C4-NF KIT(20)for tBOX(E)	
AC to DC Adapter	509000001500	PWS FSP120-AAAN3(9NA1206647) FSP 120W	
	50966224010E	Adapter 24V 90W, M12 A-code 5P FSP090AAAN3	

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

## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

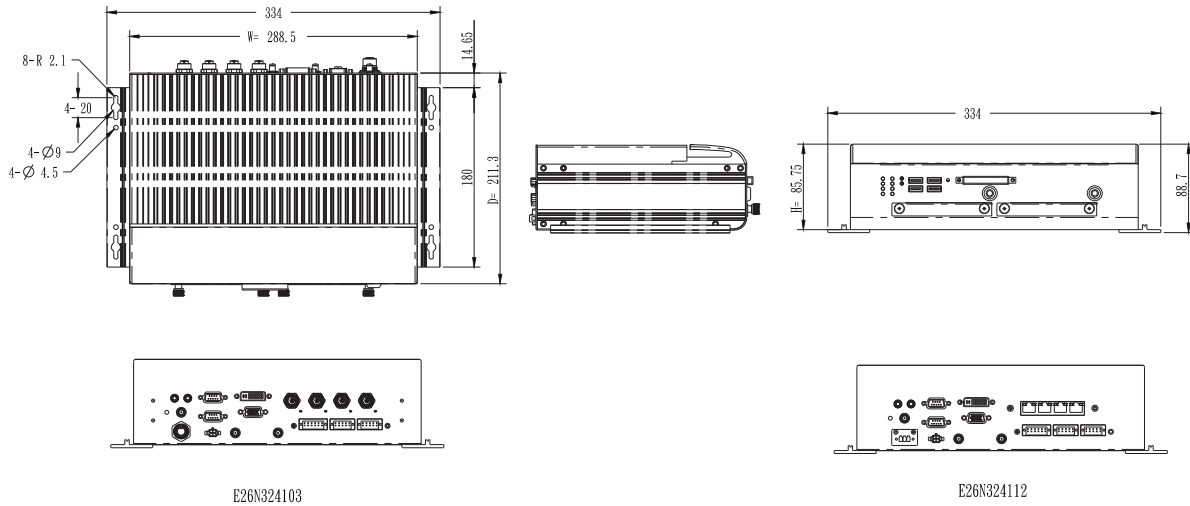
RPP (reverse polarity protection)

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

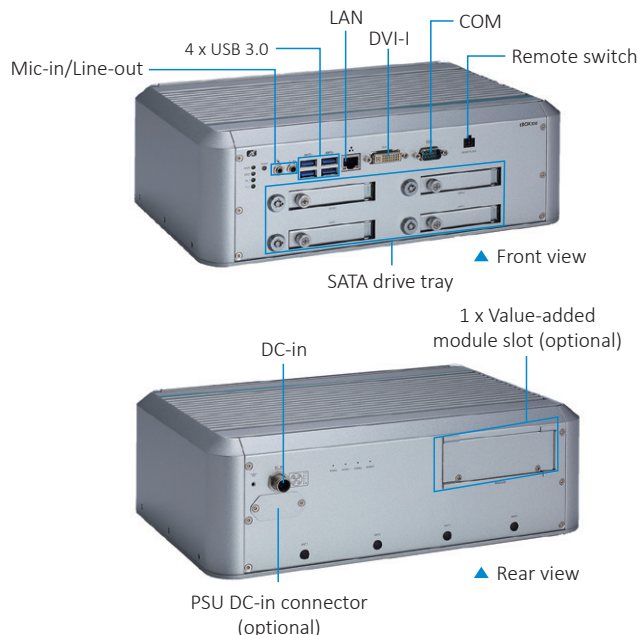
## Dimensions





# tBOX300-510-FL

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



## Features

- CE, LVD, FCC and EN 50155 certified; EN 45545-2 compliant
- 7th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Kaby Lake)
- Fanless and wide operating temperatures from -25°C to +70°C
- Power Input:
  - 24 to 110 VDC for railway version
  - 24 VDC for marine version
- External PoE PSU (optional), up to 60W power supply
- Value-added modules available for various I/O requirements (COM/LAN/DIO/PoE/CAN/BNC)
- 4 swappable 2.5" SATA drives, Supports Marvell Hardware RAID 0/1/10



## 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, up to 32GB
BIOS	AMI
TPM	TPM 2.0
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: 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 4 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 1 x Value-added module slot
Storage	SATA Drive: 4 x Swappable 2.5" SATA drive (9.5 mm height), Marvell HW RAID 0/1/10 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 Marine: 1 x terminal block, 24 VDC Power Consumption: 24V- 110V, 3.5A- 0.7A



## Specifications

PoE (PSE, Power Sourcing Equipment)	PoE Power Source	1 x Terminal block PoE power-in with PSU120-259 (optional, see Ordering info)
	PoE Performance	Up to 4 x configurable M12/RJ-45 PoE output max. 60W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port)</li> <li>PoE+ (802.3at 30W/port)</li> </ul> To be used with VAM PoE series and PSU120-259 series (optional, see Ordering info)
System Indicator	1 x LED indicator for mSATA activity 1 x LED indicator for power 4 x LED indicator for SATA drive activity 2 x programmable	
Operating Temperature	-25°C to +70°C (-13°F to +158°F) with W.T. peripheral* -25°C to +60°C (-13°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 105.33 mm (4.15") (H) (without wall mount)	
Mounting	Wall mount	
Weight (net/gross)	5.5 kg (12.13 lb)/6.7 kg (14.77 lb)	
Certifications	CE (Class A), LVD, FCC (Class A) and EN 50155 certified; EN 45545-2 compliant	
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 60950-1	
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating)	
	1 Grms w/ HDD (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	AXView	

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

## Ordering Information









### System

tBOX300-510-FL-Celeron®/i3/i5/i7-24-110MRDC (P/N: E26N300100) for i7-7600U (P/N: E26N300101) for i5-7300U (P/N: E26N300102) for i3-7100U (P/N: E26N300103) for 3965U	Fanless railway embedded system, 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, four 2.5" SATA trays, M12 A-code DC-in, and 24 to 110 VDC	
tBOX300-510-FL-Celeron®/i3/i5/i7-TMDC (By request)	Fanless marine embedded system, 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, four 2.5" SATA trays, terminal block DC-in, and 14 to 32 VDC	


\*MRDC: M12 DC-in connector, railway SKU, DC voltage input

\*TMDC: Terminal block DC-in connector, marine SKU, DC voltage input

### Value-Added Modules (VAMs) & PSU120-259

VAM100 (P/N: E277100100)	4 x Terminal block 4-wire isolated RS-232/422/485 COM Isolation voltage: 2 kV	
VAM101 (P/N: E277101100)	4 x Terminal block isolated CANBus 2.0A/B Isolation voltage: 2 kV	
VAM200 (P/N: E277200100)	1 x Terminal block isolated DIO 8-in/8-out Isolation voltage: 2 kV	
VAM400 (P/N: E277400100)	4 x BNC video-in & 1 x BNC audio-in • Supports FPS: NTSC/PAL (up to 120fps @960/720 x 480/100fps @960/720 x 576), H.264 video recording 2 x Full size Rev. 1.2 PCI Express Mini Card slot • 1 x USB with SIM socket • 1 x USB/PCIe with SIM socket (occupied by 1 x Capture Card)	
VAM600 (P/N: E277600100)	2 x Full size Rev. 1.2 PCI Express Mini card slot • 1 x USB/PCIe with SIM socket • 1 x USB with SIM socket 4 x Antenna opening	
VAM700/VAM701 (P/N: E277700100/E277701100) VAM702/VAM703 (P/N: E277702100/E277703100) VAM704/VAM705 (P/N: E277704100/E277705100) VAM706/VAM707 (P/N: E277706100/E277707100) VAM708 (P/N: E277708101)	VAM700/701 (PoE): 4 x M12 A-code GbE (PoE optional*) VAM702/703 (PoE): 4 x RJ45 GbE (PoE optional*) VAM704/705 (PoE): 4 x M12 D-code 10/100 Mbps Ethernet (PoE optional*) VAM706/707 (PoE): 4 x M12 X-code GbE (PoE optional*) VAM708 : 4 x M12 A-code w/ LAN Bypass *PSU120-259 is required if select VAM701/703/705/707	
VAM900 (P/N: E277900100)	2 x Full-size Rev.1.2 PCI Express Mini Card slot • 2 x USB with SIM socket 1 x Half-size Rev.1.2 PCI Express Mini Card slot • 1 x PCIe 1 x Terminal block 4-wire isolated RS-232/422/485 COM (isolation Voltage: 2 kV) 1 x Terminal block isolated CANBus 2.0A/B (isolation Voltage: 2 kV) 1 x Terminal block isolated DIO 8-in/8-out (isolation Voltage: 1.5 kV)	
PSU120-259 series Railway-24VDC (P/N: E276120101) Railway-48VDC (P/N: E276120102) Railway-96/110VDC (P/N: E276120103)	Fanless DC-DC adapter • Support 24/48/96/110V-in • Power output max. 120W • -40°C to +70°C (-40°F to +158°F)	

### Optional

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)	
	8816N3235A0E	3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E)	
	886N50010A0E	LTE LE910C4-AP KIT (30) for tBOX (E)	
	886N50011A0E	LTE LE910C4-EU KIT (30) for tBOX (E)	
	886N50012A0E	LTE LE910C4-NF KIT (30) for tBOX (E)	
AC to DC Adapter	50966224010E	Aadpter 24V 90W, M12 A-code 5P FSP090AAAN3	

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

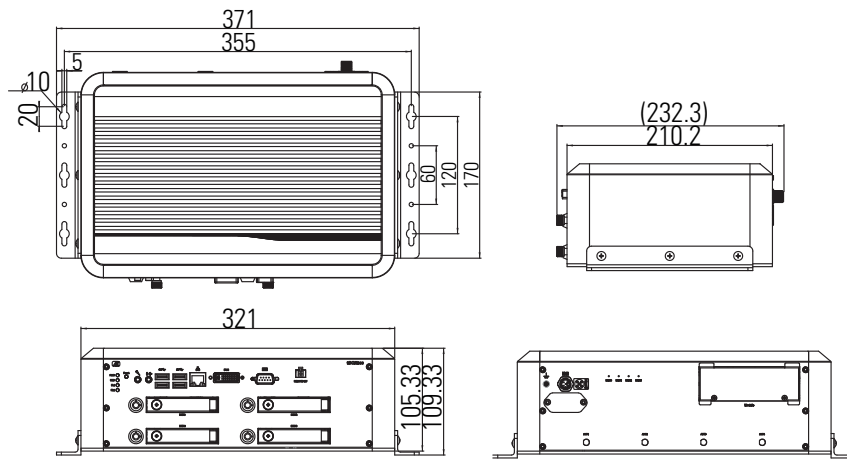
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## Power Protection

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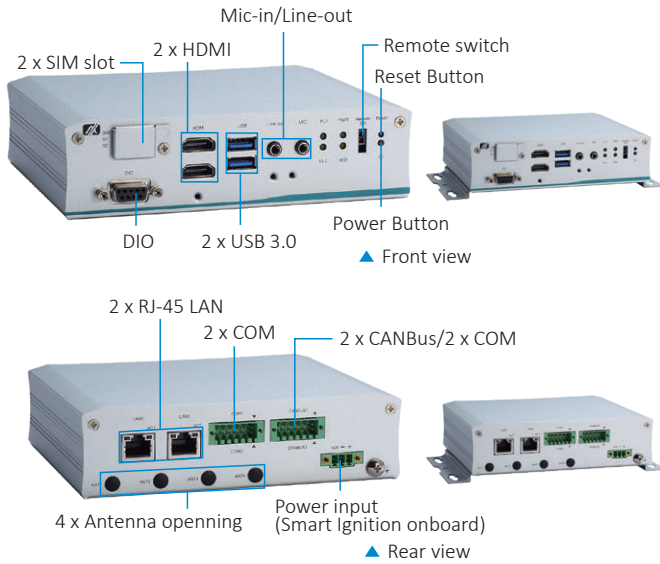
- OCP (over current protection)
- OVP (over voltage protection)
- UVP (under voltage protection)
- RPP (reverse polarity protection)

## Dimensions



# tBOX110 NEW

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	Serial	Vehicle : 2 x RS-232/422/485 (4-wire) with shield grounding Railway : 4 x Isolated RS-232/422/485 (4-wire) with shield grounding
	Display	2 x HDMI 1.4b (with keylock)
	CANBus	Vehicle : 2 x Isolated CANBus 2.0 A/B**, supports SocketCAN*
	Audio	1 x Mic-in, 1 x Line-out
	Ethernet	Vehicle : 2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® I210-IT) Railway: 2 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT)
	USB	2 x USB 3.0
	DIO	Vehicle : 1 x DB9 8-bit programmable DIO Railway : 1 x Terminal block isolated DIO 4-in/ 4-out (isolation voltage: 2 kV)
	Others	1 x Reset button 1 x Power button 1 x Remote switch 4 x Antenna opening
Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot: <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 General use: 1 x Terminal block / M12, 9-36 VDC Vehicle: 1 x Terminal block, 12/24 VDC with smart ignition Railway: 1 x M12, 24 VDC / 36-110 VDC
	Power Consumption	Vehicle: 9 VDC, 3.742A; 36 VDC, 0.907A Railway: 24 VDC, 1.38A 36VDC- 110VDC, 0.98A- 0.33A
System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power 2 x LED indicator for LAN activity 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) 1 Grms w/ HDD (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	
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.

## Power Protection

### System

tBOX110-APL-TV (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 (P/N: TBD)	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 (P/N: TBD)	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)

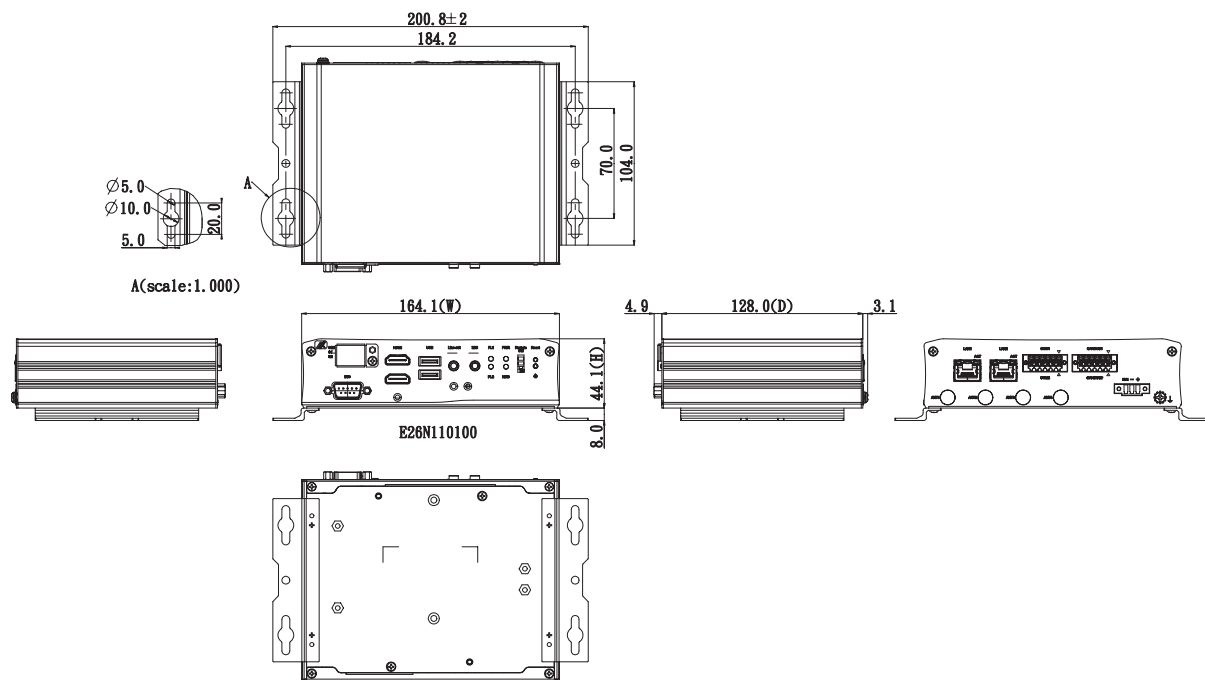
RPP (reverse polarity protection)

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

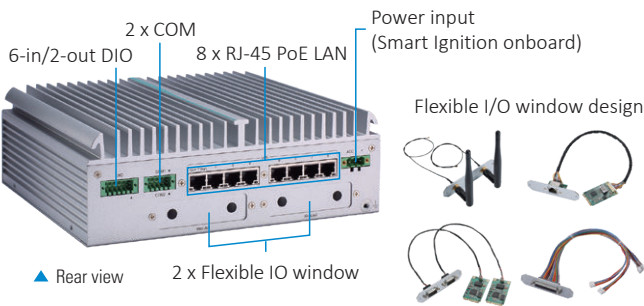
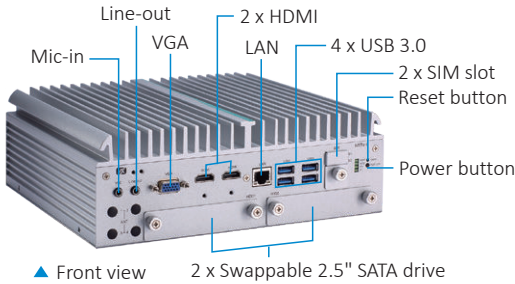
Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-ON delay and shut down delay

## Dimensions



# UST510-52B-FL

Fanless Embedded System with LGA1151 9th/8th Gen Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® Processor for Vehicle PC



## Features

- CE, FCC and E-Mark certified
- LGA1151 9th/8th Gen Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® processor (up to 65W) with Intel® C246
- Fanless and Wide operating temperatures from -40°C to +70°C
- Up to 8/16 GbE port by M12/RJ-45 connector type; none PoE port LAN by RJ45 connector
- Supports M.2 Key B and M.2 Key E for wireless communication module
- Intelligent solution of Smart Ignition for power on/off schedule, vehicle battery protection and different power mode
- Convenient swappable HDD/SSD slots and flexible I/O windows



## Specifications

Standard Color	Silver	
Construction	Aluminum extrusion and heavy-duty steel, supports up to IP40	
CPU	LGA1151 9th/8th gen Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® processor (CPU TDP max. up to 65W)	
Chipset	Intel® C246	
System Memory	2 x 260-pin DDR4-2666 ECC/non-ECC SO-DIMM, up to 64GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlet	Serial	1 x terminal block RS-232/422/485 (4-wire)
	Display	1 x VGA (supports up to 1920 x 1200 @60Hz) 2 x HDMI (supports up to 4K/2K @30Hz)
	Audio	1 x Mic-in, 1 x Line-out
	Ethernet	Flexible LAN selection: • 9 x RJ-45 GbE LAN with 2 SATA (Intel® i211-AT) • 1RJ45 + 8 x M12 A-coded GbE LAN with 4 SATA (Intel® i211-AT) • 17 x RJ-45 GbE LAN with 4 SATA (Intel® i211-AT)
	USB	4 x USB 3.0
	DIO	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)
	Others	1 x Reset button 4 x Antenna opening 2 x External accessible SIM card socket 2 x Flexible I/O window
	Expansion Interface	1 x Full-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB/PCIe) 1 x Half-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB) 1 x M.2 3050/3042 B-key 1 x M.2 2230 A & E-key
Storage	SATA Drive	2 x 2.5" 9.5 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported 4 x 2.5" 9.5 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1/5/10 supported
	mSATA	2 x mSATA (occupied 2 x PCI Express Mini Card slot)



## Specifications

Watchdog Timer	255 levels, 1 to 255 sec.	
Power in	Power Supply	General use: 1 x Terminal block, 9 to 36 VDC (typical 24V) Vehicle: 1 x Terminal block, 9 to 36 VDC with smart ignition(typical 24V)
	Power Consumption	8RJ 2SATA SKU: DC 24V@6.91A 8M12 4SATA SKU: DC 24V@7.57A 16RJ 4SATA SKU: DC 24V@7.75A
PoE (PSE, Power Sourcing Equipment)	PoE Performance	Up to 8 x RJ-45 & 8 x M12/ 16 x RJ-45 PoE output max. 90W supports PoE & PoE+ <ul style="list-style-type: none"> <li>• PoE (802.3af 15.4W/port)</li> <li>• PoE+ (802.3at 30W/port)</li> </ul>
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*	
Humidity	10% to 95%, non-condensing	
Dimensions	8RJ 2SATA SKU: 240mm (9.45") (W) x 210.5mm (8.29") (D) x 82.2mm (3.24") (H)* 8M12 4SATA SKU: 240mm (9.45") (W) x 210.5mm (8.29") (D) x 104.2mm (4.1") (H)* 16RJ 4SATA SKU: 240mm (9.45") (W) x 210.5mm (8.29") (D) x 104.2mm (4.1") (H)* *Without wall mount	
Mounting	Wall mount	
Weight (net/gross)	8RJ 2SATA SKU: 4.16 kg (9.17 lb)/4.82 kg (10.62 lb) 8M12 4SATA SKU: 4.81 kg (10.604lb)/6.06kg (13.36lb) 16RJ 4SATA SKU: 4.796kg(10.57lb)/6.05kg(13.33lb)	
Certifications	CE (Class A), FCC (Class A), E-Mark certified	
EMC	CE/FCC	EN 55032 (Class A), EN 55035, FCC part 15 B (Class A)
	E-Mark	ECE-R10
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 0.8 Grms w/ HDD (5 to 500Hz, X/Y/Z direction; random, operating) 2.5 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	
EOS Support	Win10/11 64 bit, Linux	
Software Support	AXView	

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

## Ordering Information

### System

UST510-52B-FL-8RJ-2SATA (P/N: E274510100)	Fanless embedded system with 9th/8th gen Intel® desktop processor (LGA1151), C246, VGA, 2 HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 RJ-45 PoE GbE LAN, 2 SATA drive and ACC ignition, and TDC*
UST510-52B-FL-8M12-4SATA (P/N: E274510101)	Fanless embedded system with 9th/8th gen IntelR desktop processor (LGA1151), C246, VGA, 2 HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 M12 PoE GbE LAN, 4 SATA drives and ACC ignition, and TDC*
UST510-52B-FL-16RJ-4SATA (P/N: E274510102)	Fanless embedded system with 9th/8th gen IntelR desktop processor (LGA1151), C246, VGA, 2 HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 16 RJ-45 PoE GbE LAN, 4 SATA drives and ACC ignition, and TDC*

\*TDC: terminal block DC-in connector, DC voltage input

## Optional

Anti-Vibration Kit (P/N: 8816N5008A0E)	For in-vehicle/rolling stock which improves HDD stability in NVR applications	
Communication Modules	8816N5003A0E	AP12356 w/WT Wi-Fi kit for tBOX/UST SFP (E)
	8816N810DA0E	GPS kit M8U w/UDR for tBOX SFP(E)
	886N50014A0E	MCR8822CE-P WiFi KIT(30)for tBOX(E)
	887451010A0E	LTE LE910C4-AP KIT for UST510(E)
	887451011A0E	LTE LE910C4-EU KIT for UST510(E)
	887451012A0E	LTE LE910C4-NF KIT for UST510(E)
	826K6400150E	QCNFA364 M2 WiFi W/WT for eBOX SFP

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

## Power Protection

OCB (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

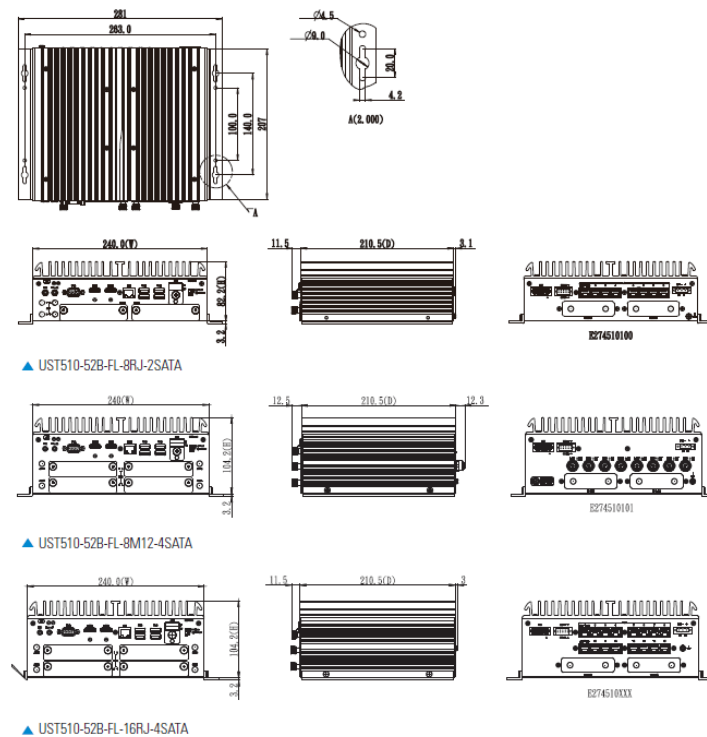
RPP (reverse polarity protection)

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



# UST500-517-FL

Fanless Embedded System with 7th/6th Gen Intel® Core™, Pentium® and Celeron® Processor for Railway and Vehicle PC



▲ Front view



▲ Rear View

## Features

- CE, FCC, E-Mark, EN 50155 and EN 45545-2 certified
- LGA1151 7th/6th gen Intel® Core™ & Pentium® processors (up to 65W) with Intel® Q170
- Fanless and Wide operating temperatures from -40°C to +70°C
- Flexible LAN selection, up to 16 RJ-45 GbE PoE LAN ports
- 24 VDC power input
- Intelligent solution of vehicle power management (ACC ignition)
- Convenient and Accessible Storage, two/four 2.5" SATA drive, 1 mSATA



## Specifications

Standard Color	Silver	
Construction	Aluminum extrusion and heavy-duty steel, supports up to IP40**	
CPU	LGA1151 7th gen Intel® Core™ processor, TDP: 35- 65W LGA1151 6th gen Intel® Core™ processor, TDP: 35- 65W	
Chipset	Intel® Q170	
System Memory	2 x DDR4-1866/2133/2400 SO-DIMM, up to 32GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlet	Serial	2 x DB9 serial console or RS-232/422/485
	Display	1 x VGA (supports up to 1920 x 1200 @60Hz) 1 x DVI-D (supports up to 2K @60Hz) 1 x HDMI (supports up to 4K/2K @30Hz)
	Audio	1 x Mic-in, 1 x Line-out
	Ethernet	Flexible LAN selection: • 8 x RJ-45 GbE LAN with 2 SATA (Intel® i211-AT) • 8 x M12 A-coded GbE LAN with 4 SATA (Intel® i211-AT) • 8 x RJ-45, 8 x M12 A-coded GbE LAN with 4 SATA (Intel® i211-AT) • 16 x RJ-45 GbE LAN with 4 SATA or 2 SATA (Intel® i211-AT)
	USB	4 x USB 3.0
	DIO	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)
	Others	1 x Reset button 5 x Antenna opening 2 x External accessible SIM card socket
	Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot: • 2 x USB/PCIe with external SIM socket 2 x Half-size Rev.1.2 PCI Express Mini Card slot: • 1 x mSATA/USB/PCIe • 1 x USB

## Specifications

Storage	SATA Drive	<ul style="list-style-type: none"> <li>• 2 x 2.5" 15 mm internal SATA drive with 2 SATA, Intel® RAID 0/1 supported</li> <li>• 2 x 2.5" 15 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported</li> <li>• 4 x 2.5" 15 mm swappable SATA drive with 4 SATA, Intel® RAID 0/1/5/10 supported</li> </ul>
	mSATA	1 x Half-sized mSATA (occupied 1 x PCI Express Mini Card slot)
Watchdog Timer	255 levels, 1 to 255 sec.	
Power in	Power Supply	General use: 1 x Terminal block, 9 to 36 VDC Vehicle: 1 x terminal block, 12/24 VDC with ACC ignition
	Power Consumption	16LAN SKU <sup>(1)</sup> : 24V/13.15A 8LAN SKU <sup>(2)</sup> : 24V/9.6A (1) 16 x RJ-45/8 x RJ-45 + 8 x M12 (2) 8 x RJ-45/8 x M12
PoE (PSE, Power Sourcing Equipment)	PoE Performance	Up to 16 x RJ-45/8 x RJ-45 & 8 x M12 PoE output max. 200W supports PoE & PoE+ <ul style="list-style-type: none"> <li>• PoE (802.3af 15.4W/port)</li> <li>• PoE+ (802.3at 30W/port)</li> </ul>
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*	
Humidity	0% to 95%, non-condensing	
Dimensions	2 internal SATA SKU: 280 mm (11.02") (W) x 210.5 mm (8.27") (D) x 70 mm (2.76") (H)* 2 swappable SATA SKU: 280 mm (11.02") (W) x 210.5 mm (8.27") (D) x 83.7 mm (3.30") (H)* 4 swappable SATA SKU: 280 mm (11.02") (W) x 210.5 mm (8.27") (D) x 99.2 mm (3.91") (H)* *Without wall mount	
Mounting	Wall mount	
Weight (net/gross)	2 internal SATA SKU: 3.95 kg (8.71 lb)/4.97 kg (10.96 lb) 2 swappable SATA SKU: 4.92 kg (10.85 lb)/5.74 kg (12.65 lb) 4 swappable SATA SKU: 4.92 kg (10.85 lb)/5.74 kg (12.65 lb)	
Certifications	CE (Class A), FCC (Class A), E-Mark (E13) and EN 50155 <sup>(1)</sup> and EN 45545-2 certified (1) 8 x RJ-45 + 8 x M12 certified	
EMC	CE/FCC	EN 55032 (Class A), EN 55024, FCC part 15 B (Class A)
	EN 50155	EN 50121-3-2, IEC 62236-3-2
	E-Mark	ECE-R10
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms w/ HDD (5 to 150Hz, 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, Windows® 7 64/32-bit (for 6th gen Intel CPU), Ubuntu 16.04	
Software Support	AXView	

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

\*\*Please refer the IP rating in ordering information

## Ordering Information

### 4 Swappable SATA Drive SKUs

UST500-517-FL-16RJ-4SATA-TDC (P/N: E274500100)	Fanless embedded IP40-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 16 RJ-45 PoE GbE LAN, 4 SATA drive and ACC ignition
UST500-517-FL-8RJ8M12-4SATATDC (P/N: E274500101)	Fanless embedded IP40-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 RJ-45, 8 M12 PoE GbE LAN, 4 SATA drive and ACC ignition
UST500-517-FL-8M12-4SATATDC (P/N: E274500102)	Fanless embedded IP40-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 M12 PoE GbE LAN, 4 SATA drive and ACC ignition

### 2 Internal SATA Drive SKUs


UST500-517-FL-8RJ-2SATA-TDC (P/N: E274500103)	Fanless embedded IP40-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 RJ-45 PoE GbE LAN, 2 internal SATA drive and ACC ignition
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### 2 Swappable SATA Drive SKUs

UST500-517-FL-16RJ-2SATATRAY-TDC (P/N: E274500104)	Fanless embedded IP30-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 16 RJ-45 PoE GbE LAN, 2 swappable SATA drive and ACC ignition
UST500-517-FL-8RJ-2SATATRAY-TDC (P/N: E274500105)	Fanless embedded IP30-rated system with 6/7th gen Intel® desktop processor (LGA1151), Q170, VGA, DVI-D, HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 RJ-45 PoE GbE LAN, 2 swappable SATA drive and ACC ignition

\*TDC: terminal block DC-in connector, DC voltage input

### Optional

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)	
	8816N3235A0E	3G/GPS UC20GKit for tBOX (3G/GPS ANT)	
	8816K6603A0E	AMPAK AP12356 Wi-Fi kit (E)	
	8816N5003A0E	AP12356 w/WT Wi-Fi kit for tBOX/UST SFP (E)	
	881745001A0E	GPS Kit M8N w/o adapter for tBOX/UST SFP (E)	
	886N50010A0E	LTE LE910C4-AP KIT(30)for tBOX(E)	
	886N50011A0E	LTE LE910C4-EU KIT(30)for tBOX(E)	
	886N50012A0E	LTE LE910C4-NF KIT(30)for tBOX(E)	
AC to DC Adapter	886N50014A0E	MCR8822CE-P WiFi KIT(30)for tBOX(E)	
	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)

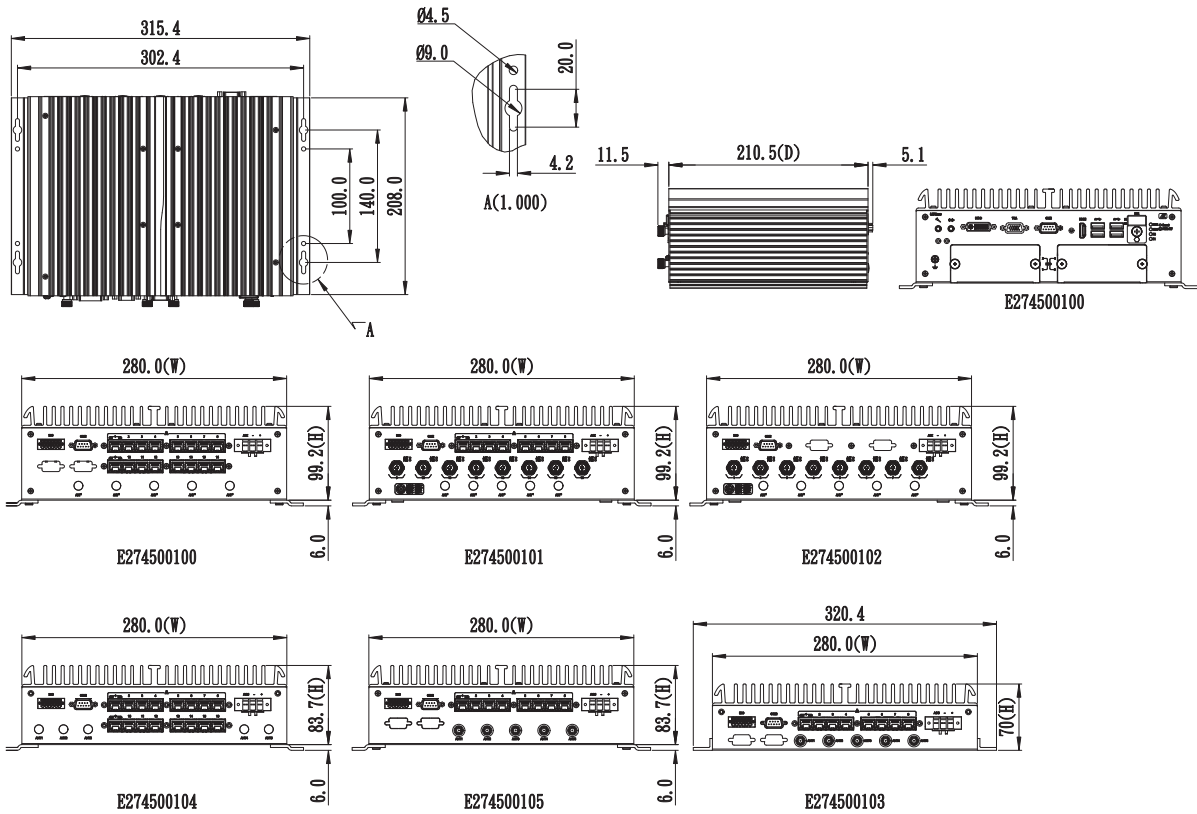
RPP (reverse polarity protection)

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

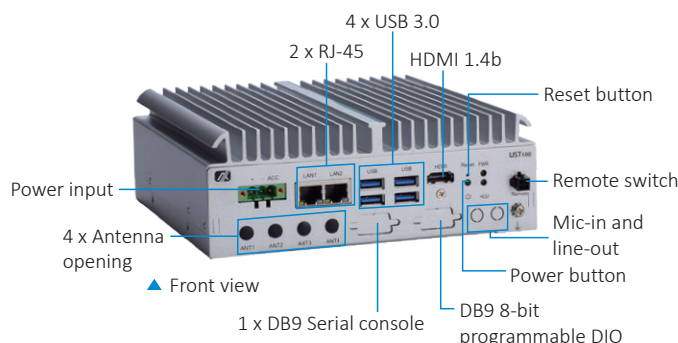
Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-ON delay and shut down delay

## Dimensions



# UST100-504-FL

Fanless Embedded System with 7th/6th Gen Intel® Core™, Pentium® and Celeron® Processor, Compact Size for Video Analytics in Vehicle PC Market



## Features

- CE, FCC certified; ISO 7637-2 compliant
- LGA1151 7th/6th gen Intel® Core™ & Pentium® processors (up to 35W) with Intel® H110
- Fanless and Wide operating temperatures from -40°C to +60°C
- 12/24 VDC power input, with power management (ACC ignition)
- Single-sided I/O design for easy maintenance
- Expansion capability for three PCI Express Mini Card slot and two internal SIM card slot



## Specifications

Standard Color	Silver	
Construction	Aluminum extrusion and heavy-duty steel, IP30	
CPU	LGA1151 7th gen Intel® Core™ processors, TDP: 35W LGA1151 6th gen Intel® Core™ processors, TDP: 35W	
Chipset	Intel® H110	
System Memory	1 x DDR4-1866/2133/2400 SO-DIMM, up to 16GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlet	Serial	1 x DB9 Serial console or RS-232/422/485
	Display	1 x HDMI 1.4b supports up to 4K/2K @30Hz
	Ethernet	2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i211-AT)
	USB	4 x USB 3.0
	DIO	1 x DB9 8-bit programmable DIO
	Others	1 x Reset button 1 x Power switch 1 x Remote switch 4 x Antenna opening
Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot:	<ul style="list-style-type: none"> <li>• 1 x USB/PCIe with SIM socket</li> <li>• 1 x mSATA/USB/PCIe with SIM socket</li> </ul>
	1 x Half-size Rev.1.2 PCI Express Mini Card slot:	<ul style="list-style-type: none"> <li>• 1 x mSATA/USB</li> </ul>
Storage	SATA drive	1 x Internal 2.5" SATA drive (9.5 mm height)
	mSATA	1 x Full-sized mSATA (occupied 1 x PCI Express Mini Card slot) 1 x half-sized mSATA (occupied 1 x PCI Express Mini Card slot)
Watchdog Timer	255 levels, 1 to 255 sec.	

## Specifications

Power	Power Supply	General use: 1 x Terminal block, 9 to 36 VDC Vehicle: 1 x terminal block, 12/24 VDC with ACC ignition
	Power Consumption	9V, 7.774A/36V, 2.01A
System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power	
Operating Temperature	-40°C to +60°C (-40°F to +140°F) with W.T. peripheral*	
Humidity	0% to 95%, non-condensing	
Dimensions	185 mm (7.09") (W) x 150 mm (5.91") (D) x 65 mm (2.56") (H) (without wall mount)	
Mounting	Wall mount	
Weight (net/gross)	1.71 kg (3.77 lb)/2.19 kg (4.83 lb)	
Certifications	CE (Class A), FCC (Class A) certified; and ISO 7637-2 compliant	
EMC	CE/FCC EN 55032 (Class A), EN 55024, FCC part 15 B (Class A)	
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms w/ HDD (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	
EOS Support	Windows® 10 64-bit, Windows® 7 64/32-bit (for 6th gen Intel® CPU), Ubuntu 18.04	
Software Support	AXView	

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

## Ordering Information

### System

UST100-504-FL-i7-TDC (P/N: E274100101)	Fanless embedded system with LGA1151 7th gen Intel® i7-7700T/i5-7500T desktop processor, H110, HDMI, 4 USB 3.0, 2 RJ-45 GbE LAN, RS-232/422/485, DIO, SATA drive and ACC ignition
UST100-504-FL-i5-TDC (P/N: E274100102)	



\*TDC: terminal block DC-in connector, DC voltage input

### Optional

Anti-vibration Kit (P/N: 8816N1000A0E)	For in-vehicle/rolling stock applicable systems which improves HDD/SSD stability	
Communication Modules	8816N3239A0E	3G UC20GKit for tBOX/UST (3G ANT) (E)
	8816N3235A0E	3G/GPS UC20GKit tBOX/UST(3G/GPS ANT) (E)
	8816N5003A0E	AP12356 WT Wi-Fi kit for tBOX/UST SFP (E)
	8816N810DA0E	GPS kit M8U with adapter for tBOX SFP (E)
	881745001A0E	GPS kit without adapter for UST SFP (E)
	886N50010A0E	LTE LE910C4-AP KIT(30)for tBOX(E)
	886N50011A0E	LTE LE910C4-EU KIT(30)for tBOX(E)
	886N50012A0E	LTE LE910C4-NF KIT(30)for tBOX(E)
AC to DC Adapter	509000001500	PWS FSP120-AAAN3(9NA1206647) FSP 120W





## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

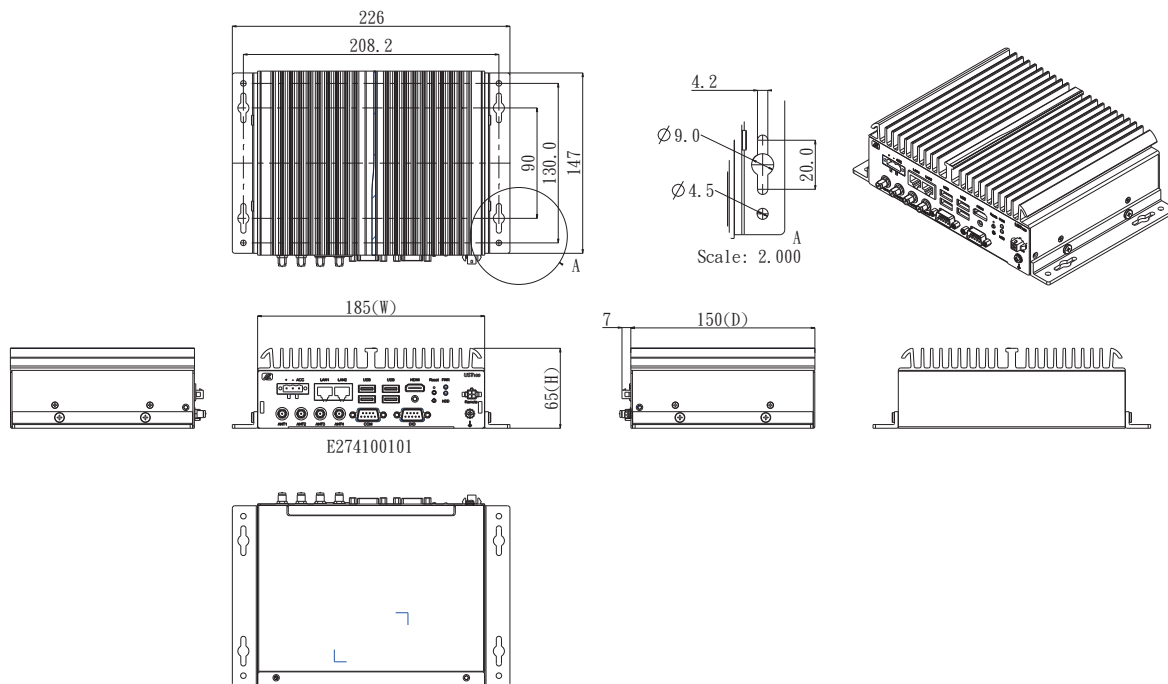
RPP (reverse polarity protection)

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

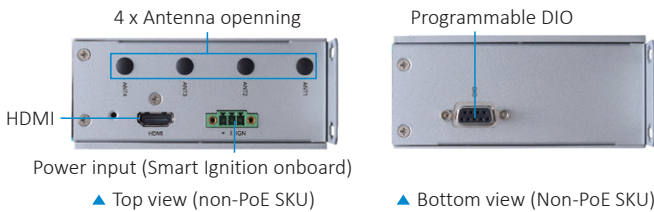
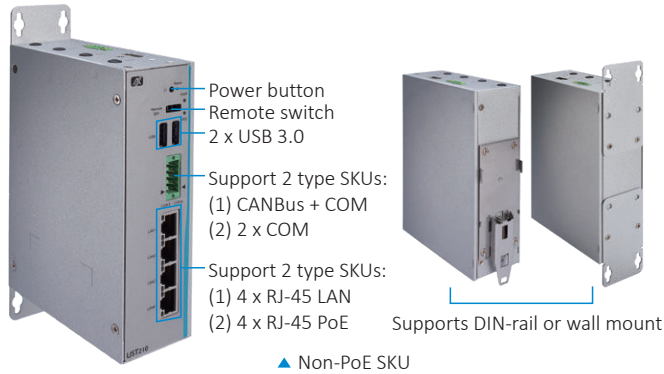
Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-on delay and shut down delay

## Dimensions



# UST210-83K-FL

Robust and Compact DIN-rail Fanless Embedded System with Intel Atom® x5-E3940 Processor for In-Vehicle Gateway Applications



## Features

- CE and FCC certified; ISO 7637-2 compliant
- Intel Atom® x5-E3940 processor
- Extreme cost-effective with fanless and cableless design
- Wide operating temperature range from -40°C to +70°C
- Supports 9 to 36 VDC and 12/24 VDC typical in-vehicle power input
- Smart Ignition for power on/off schedule, vehicle battery protection, and different power modes
- Support COM, CAN, USB, GbE PoE LAN
- 8-bit programmable DIO for IoT gateway applications
- Supports SocketCAN
- AMS.AXView intelligent remote monitoring



## Specifications

Standard Color	Sliver	
Construction	Extruded aluminum 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	
TPM	TPM 2.0	
System I/O Outlet	Serial	Up to 2 x Terminal block Serial console or RS-232/422/485**
	CANBus	1 x Terminal block CANBus 2.0 A/B**, supports SocketCAN*
	Display	1 x HDMI (up to 1920x1080@60Hz)
	Ethernet	4 x RJ-45 isolated 10/100/1000 Mbps Ethernet (Intel® i211-AT)
	USB	2 x USB 3.0
	DIO	1 x DB9 8-bit programmable DIO
	Others	4 x Antenna opening 1 x Power button 1 x Reset button 1 x Remote switch
	Extension Interface	1 x Full-size Mini Card slot with SIM Slot (only USB) 1 x Half-size Mini Card slot (USB/mSATA)
Storage	SATA Drive	1 x Internal 2.5" SATA drive (9.5 mm height)
	mSATA	1 x Half-sized mSATA (occupied 1 x PCI Express Mini Card slot)
Watchdog Timer	255 levels, 1 to 255 sec.	
Power	Power Supply	General Use: 1 x Terminal block, 9 to 36 VDC (typical:12/24V) Vehicle: 1 x Terminal block, 9 to 36 VDC with smart ignition (typical:12/24V)
	Power Consumption	Non-PoE SKU: 9 VDC, 3.878A; 36VDC, 0.85A PoE SKU: 9VDC 6.298A, 36VDC 1.617A

## Specifications

PoE (PSE, Power Sourcing Equipment)**	Up to 4 x configurable RJ-45 PoE output max. 30W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port)</li> <li>PoE+ (802.3at 30W/port)</li> </ul>
System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral***
Humidity	0% to 95%, non-condensing
Dimensions	Non-PoE SKU: 48 mm (1.89") (W) x 110.4 mm (4.33") (D) x 155 mm (6.1") (H) PoE SKU: 67 mm (2.63") (W) x 110.4 mm (4.33") (D) x 155 mm (6.1") (H)
Mounting	Wall mount, DIN-rail
Weight (net/gross)	Non-PoE SKU: 0.51 kg (1.12 lb)/0.79 kg (1.74 lb) PoE SKU: 0.84 kg (1.85 lb)/1.12 kg (2.47 lb)
Certifications	CE (Class A), FCC (Class A) certified; ISO 7637-2 compliant
EMC	CE/FCC EN 55032 (Class A), EN 55024, FCC part 15 B (Class A)
Vibration Endurance	3 Gms with mSATA and SSD (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant
EOS Support	Windows® 10 64-bit, Ubuntu 18.04
Software Support	AXView





\* Please refer the detail in SocketCAN manual.

\*\* See Ordering information.

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

## Ordering Information

### System

UST210-83K-FL-E3940-CANCOM-TVDC (P/N: E274210100)	Fanless embedded system with Intel Atom® x5-E3940 processor, 1 CAN, 1 COM, 4 LAN, 2 USB, 1 DIO and 1 HDMI, TPM 2.0 supported, with Smart Ignition	 Non-PoE SKU
UST210-83K-FL-E3940-2COM-TVDC (P/N: E274210101)	Fanless embedded system with Intel Atom® x5-E3940 processor, 2 COM, 4 LAN, 2 USB, 1 DIO and 1 HDMI, TPM 2.0 supported, with Smart Ignition	 Non-PoE SKU
UST210-83K-FL-E3940-4POE-CANCOM-TVDC (P/N: E274210102)	Fanless embedded system with Intel Atom® x5-E3940 processor, 1 CAN, 1 COM, 4 PoE LAN, 2 USB, 1 DIO and 1 HDMI, TPM 2.0 supported, with Smart Ignition	 PoE SKU
UST210-83K-FL-E3940-4POE-2COM-TVDC (P/N: E274210103)	Fanless embedded system with Intel Atom® x5-E3940 processor, 2 COM, 4 PoE LAN, 2 USB, 1 DIO and 1 HDMI, TPM 2.0 supported, with Smart Ignition	 PoE SKU

\*TDC: terminal block DC-in connector, DC voltage input

### Optional

Communication Modules	8812C300GA0E	3G UC20GKit tBOX/ICO(20) (E)
	8812C300HA0E	3G/GPS UC20GKit tBOX/ICO(20) (E)
	887421011A0E	LE910C4-AP KIT w/GPS for UST210 (E)
	822C1200170E	WiFi WPET-239ACN(BT) FOR ICO120
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)

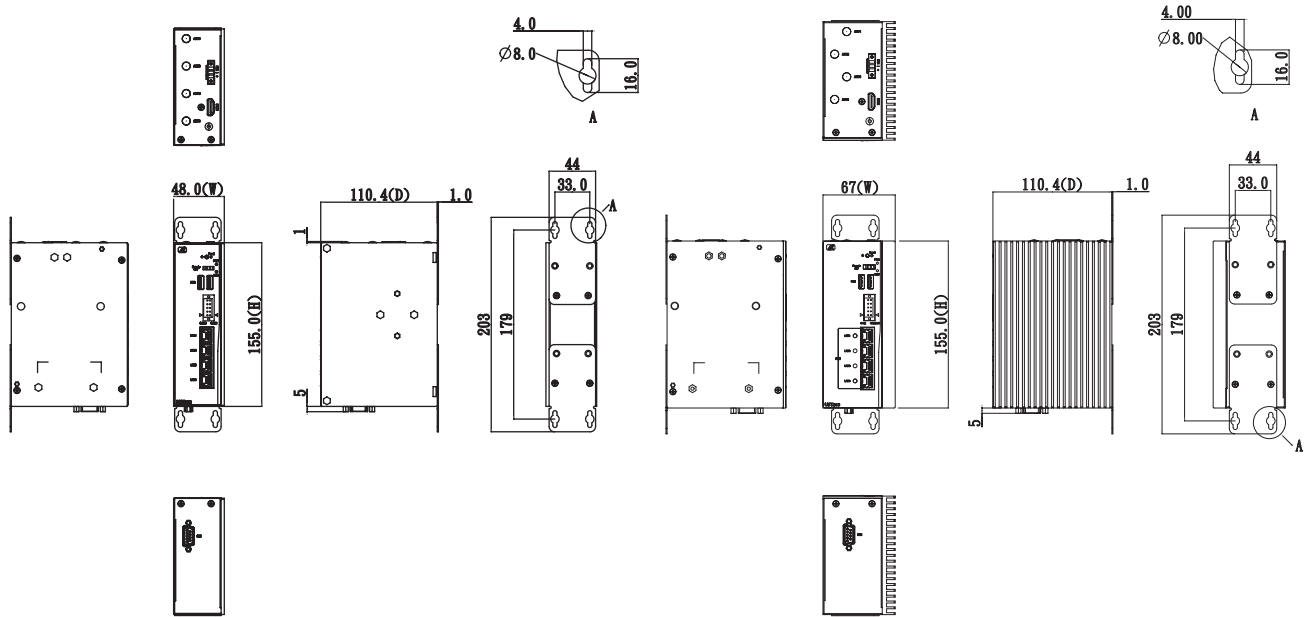
RPP (reverse polarity protection)

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



E274210101

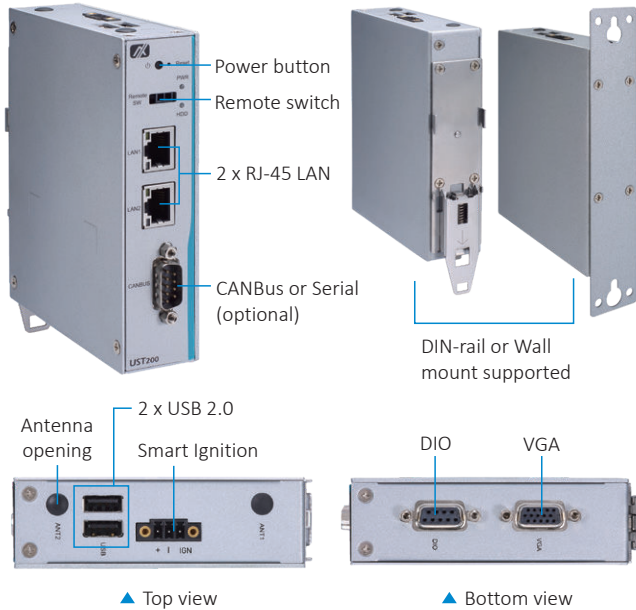
▲ Non-PoE SKU

E274210102

▲ PoE SKU

# UST200-83H-FL

Robust and Compact DIN-rail Fanless Embedded System with Intel Atom® x5-E3930 Processor for In-Vehicle Gateway Application



## Features

- CE, FCC certified; ISO 7637-2 compliant
- Intel Atom® x5-E3930 processor
- Extreme cost-effective with fanless and cableless design
- Wide operating temperature range from -40°C to +70°C
- Supports 12 & 24 VDC typical in-vehicle power input
- Smart Ignition for power on/off schedule, vehicle battery protection and different power mode
- Supports COM, CAN, USB, GbE LAN
- Supports SocketCAN
- AMS.AXView intelligent remote monitoring



## Specifications

Standard Color	Sliver	
Construction	Extruded aluminum and heavy-duty steel, IP20	
CPU	Intel Atom® x5-E3930 2C @1.3 GHz, TDP: 6.5W	
Chipset	SoC integrated	
System Memory	1 x DDR3L-1866 SO-DIMM, up to 8GB	
BIOS	AMI	
TPM	TPM 2.0	
System I/O Outlet	Serial	1 x DB9 Serial console or RS-232/422/485**
	CANBus	1 x DB9 CANBus 2.0 A/B**, supports SocketCAN*
	Display	1 x VGA (up to 1920 x 1200 @60Hz) (HDMI optional)
	Ethernet	2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i211-AT)
	USB	2 x USB 2.0
	DIO	1 x DB9 8-bit programmable DIO
	Others	2 x Antenna opening 1 x Power button 1 x Remote switch
	Extension Interface	1 x Full-size Rev. 1.2 PCI Express Mini Card slot: • USB/PCIe with SIM socket 1 x Half-size Rev. 1.2 PCI Express Mini Card slot: • mSATA/USB/PCIe
Storage	mSATA	1 x Half-sized mSATA (occupied 1 x PCI Express Mini Card slot)
	eMMC	Optional***
Watchdog Timer	255 levels, 1 to 255 sec.	
Power	Power Supply	General Use: 1 x Terminal block, 9 to 36 VDC Vehicle: 1 x Terminal block, 12/24 VDC with smart ignition
	Power Consumption	9V, 2.06A/36V, 0.55A

## Specifications

System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral****
Humidity	0% to 95%, non-condensing
Dimensions	31 mm (1.22") (W) x 100.4 mm (3.93") (D) x 125 mm (4.92") (H)
Mounting	Wall mount, DIN-rail
Weight (net/gross)	0.3 kg (0.67 lb)/0.45 kg (0.99 lb)
Certifications	CE (Class A), FCC (Class A) certified; ISO 7637-2 compliant
EMC	CE/FCC EN 55032 (Class A), EN 55024, FCC part 15 B (Class A)
Vibration Endurance	3 Gms with mSATA (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant
EOS Support	Windows® 10 64-bit, Ubuntu 18.04
Software Support	AXView

\* Please refer the detail in SocketCAN manual.



\*\* See Ordering information.

\*\*\* Please contact Axiomtek for the details of mounting and pre-installed software.

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

## Ordering Information

### Standard

UST200-83H-FL-E3930-CAN-TVDC (P/N: E274200100)	Fanless embedded system with Intel Atom® x5-E3930 processor, 1 CAN, 2 LAN, 2 USB and 1 DIO, operating temperature from -40 to 70°C, TPM 2.0 supported, and Smart Ignition	
UST200-83H-FL-E3930-COM-TVDC *By request.	Fanless embedded system with Intel Atom® x5-E3930 processor, 1 COM, 2 LAN, 2 USB and 1 DIO, operating temperature from -40 to 70°C, TPM 2.0 reserved, and Smart Ignition	

\*TDC: terminal block DC-in connector, DC voltage input

### Optional

Communication Modules	8812C300GA0E	3G UC20GKit tBOX/ICO (20) (E)
	8812C300HA0E	3G/GPS UC20GKit tBOX/ICO (20) (E)
	8812C1200A0E	AP12356 Wi-Fi kit for tBOX/ICO (E)
	8812C1201A0E	AP12356 WT Wi-Fi kit for tBOX/ICO (E)
	886N32310A0E	LTE LE910C4-AP KIT(20)for tBOX(E)
	886N32311A0E	LTE LE910C4-EU KIT(20)for tBOX(E)
AC to DC Adapter	886N32312A0E	LTE LE910C4-NF KIT(20)for tBOX(E)
	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)

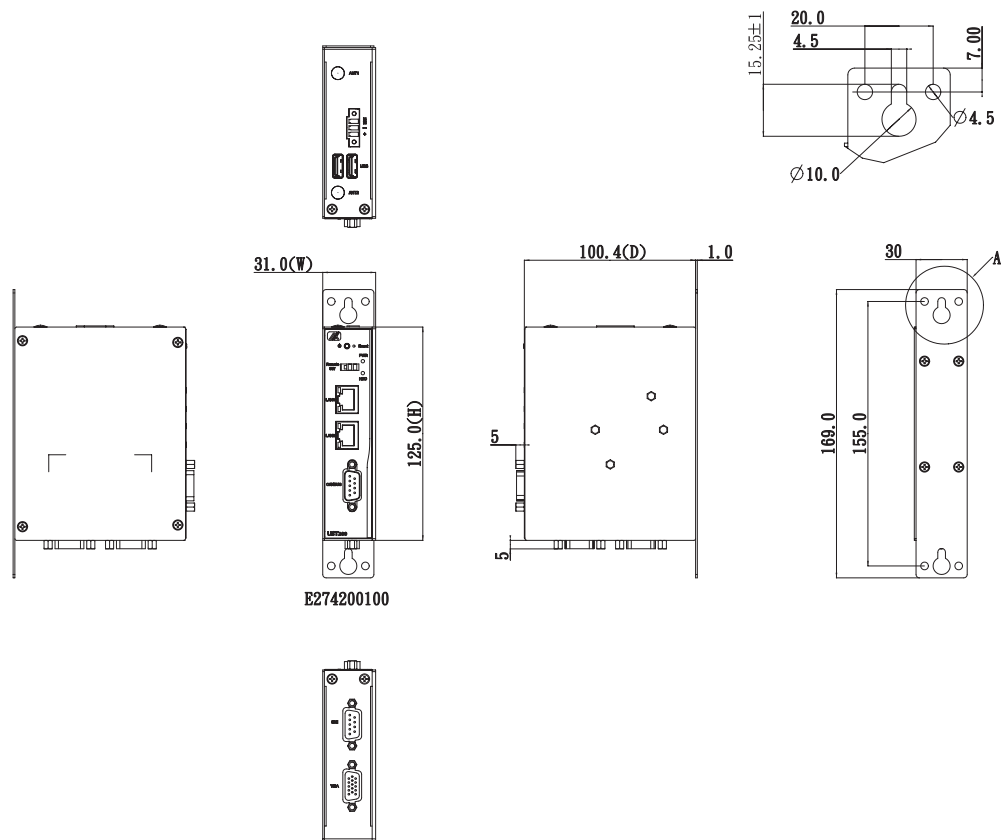
RPP (reverse polarity protection)

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



# 2

## Value-added Modules and Peripherals

An integrator or transit authority can choose from many available value-added modules (VAMs) to customize Axiomtek's tBOX products to fit their specific project requirements, which further saves the overall deployment costs.

### Value-add Modules (VAMs)

VAM900	56
<b>NEW</b> VAM708	57
VAM707/VAM706	58
VAM705/VAM704	59
VAM703/VAM702	60
VAM701/VAM700	61
VAM600	62
VAM400	63
VAM200	64
VAM101	65
VAM100	66

### PCI Express Mini Modules

AX92160	67
AX92912	68

### Peripherals

PSU120-259	PoE Power Sourcing Equipment for tBOX300/tBOX500 Series	69
Anti-Vibration Kit		71

## Intelligent Transportation Platforms



# VAM900



Thumb screw

## Specifications

I/O Outlet	1 x Terminal block 4-wire isolated RS-232/422/485 COM 1 x Terminal block isolated CANBus 2.0A/B (isolation voltage: 2 kV) 1 x Terminal block isolated DIO 8-in/8-out
Isolation Voltage	COM & CANBus: 2 kV DIO: 1.5 kV
Expansion interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot • 2 x USB with SIM socket 1 x Half-size Rev.1.2 PCI Express Mini Card slot • 1 x PCIe
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral
Certifications	EN 50155 certified; CE, LVD and FCC compliant
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 60950-1
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating) EN 50155 EN 61373 category 1 class B
Shock	EN 50155 Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM900 (P/N: E277900100)	Value-added module with COM/CAN/DIO and 3 Rev.1.2 PCI Express Mini Card slot and to be used with tBOX300/500 series
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## Pin Definition

Pin	DI	Pin	DO
COM	External power	COM	COM+
GND	DI_GND	COM-	COM-
0	DIO	0	DO0
1	DI1	1	DO1
2	DI2	2	DO2
3	DI3	3	DO3
4	DI4	4	DO4
5	DI5	5	DO5
6	DI6	6	DO6
7	DI7	7	DO7

Pin	RS232	RS422	RS485	Pin	CANBus
B1	GND	GND	GND	A1	CAN_GND
B2	RTS	RXN	RSVD	A2	CAN_H
B3	TXD	RXP	RSVD	A3	CAN_L
B4	CTS	TXN	DN	A4	CAN_GND
B5	RXD	TXP	DP	A5	RSVD

# VAM708 NEW



## Pin Definition



M12 A-coded  
8-Pin/ Female

Pin	10/100 Mbps	1000 Mbps
1	--	MDI 2+
2	--	MDI 3+
3	--	MDI 3-
4	TX-	MDI 0-
5	RX +	MDI 1+
6	TX +	MDI 0+
7	--	MDI 2-
8	RX-	MDI 1-

## Specifications

I/O Outlet	4 x M12 A-coded GbE LAN	
Ethernet Port	Intel i210-IT with LAN Bypass feature and latch relay circuitry design (following IEEE 802.3)	
Watchdog Timer	8 stepping for LAN Bypass	
LAN Bypass Selection	BIOS & Hardware setting	
LED	4 x ACT LED for each LAN port 2 x LED for LAN Bypass status	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & wide operating temperature peripheral	
Certifications	CE, LVD, FCC and EN 50155 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 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

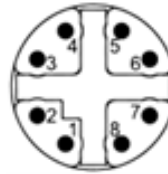
## Ordering Information

VAM708 (P/N: E277708101)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 A-coded GbE LANs and is used with tBOX300/500 series</li> <li>Supports LAN Bypass</li> </ul>
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# VAM706/VAM707



## Pin Definition



M12 X-coded  
8-Pin/ Female

Pin	10/100 Mbps	1000 Mbps
1	TX +	MDI 0+
2	TX-	MDI 0-
3	RX +	MDI 1+
4	RX-	MDI 1-
5	--	MDI 3+
6	--	MDI 3-
7	--	MDI 2-
8	--	MDI 2+

## Specifications

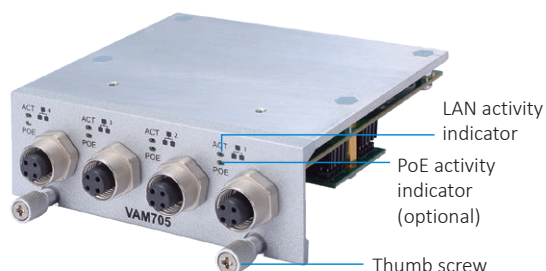
I/O Outlet	4 x M12 X-coded GbE LAN	
PoE Performance	4 x manageable M12 output max. 60W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port), PoE+ (802.3at 30W/port)</li> <li>manageability in total power budget, port enable/disable</li> <li>Available with VAM707 and optional external PoE PSU120-259</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	CE, LVD, FCC and EN 50155 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 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
Shock	EN 50155 Half-sine pulse, 5g, 30ms(longitudinal direction), 3g, 30ms (vertical/transverse direction)	

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

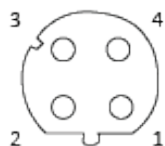
## Ordering Information

VAM706 (P/N: E277706100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 X-coded GbE LAN to be used with tBOX300/500 series</li> </ul>
VAM707 (P/N: E277707100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 X-coded GbE LAN and PoE, to be used with tBOX300/500 series</li> <li>Supports PoE (with optional external PoE PSU120-259)</li> </ul>

# VAM704/VAM705



## Pin Definition



M12 D-coded  
4-Pin/ Female

Pin	10/100 Mbps
1	TxData+
2	RxData+
3	TxData-
4	RxData-

## Specifications

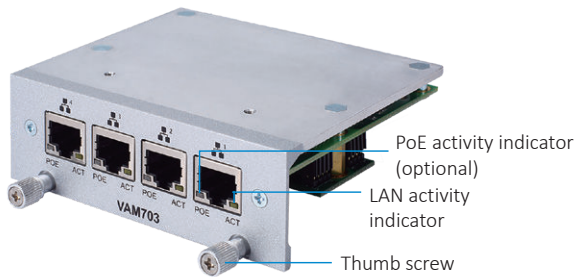
I/O Outlet	4 x M12 D-coded 10/100 Mbps Ethernet	
PoE Performance	4 x manageable M12 output max. 60W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port), PoE+ (802.3at 30W/port)</li> <li>manageability in total power budget, port enable/disable</li> <li>Available with VAM705 and optional external PoE PSU120-259</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	CE, LVD, FCC and EN 50155 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 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM704 (P/N: E277704100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 D-coded 10/100 Mbps Ethernet and to be used with tBOX300/500 series</li> </ul>
VAM705 (P/N: E277705100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 D-coded 10/100 Mbps LAN and PoE, to be used with tBOX300/500 series</li> <li>Supports PoE (with optional external PoE PSU120-259)</li> </ul>

# VAM702/VAM703



## Pin Definition



Pin	Description	10/100Base-T	1000Base-T
1	Transmits Data+ or Bidirectional	TX+	BI_DA+
2	Transmits Data- or Bidirectional	TX-	BI_DA-
3	Receives Ddata+ or Bidirectional	RX+	BI_DB+
4	Not Connected or Bidirectional	N.C.	BI_DC+
5	Not Connected or Bidirectional	N.C.	BI_DC-
6	Receive Ddata- or Bidirectional	RX-	BI_DB-
7	Not Connected or Bidirectional	N.C.	BI_DD+
8	Not Connected or Bidirectional	N.C.	BI_DD-
ACT	Activity Link LED (Yellow)	OFF : No LinkBlinking: Data activity detected	

## Specifications

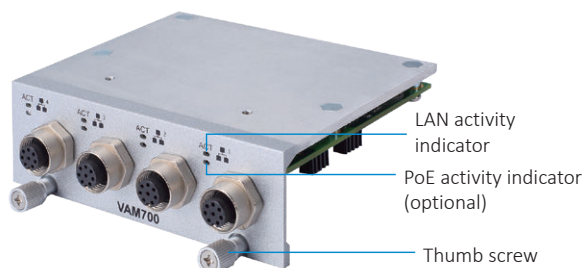
I/O Outlet	4 x RJ-45 GbE LAN	
PoE Performance	4 x manageable RJ-45 output max. 60W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port), PoE+ (802.3at 30W/port)</li> <li>manageability in total power budget, port enable/disable</li> <li>Available with VAM703 and optional external PoE PSU120-259</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	LVD, FCC, EN 50155 and IEC 60945 certified; CE compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
LVD	EN 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
	IEC 60945	IEC 60068-2-6
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM702 (P/N: E277702100)	<ul style="list-style-type: none"> <li>Value-added module with 4 RJ-45 GbE LAN and to be used with tBOX300/500 series</li> </ul>
VAM703 (P/N: E277703100)	<ul style="list-style-type: none"> <li>Value-added module with 4 RJ-45 GbE LAN and PoE, to be used with tBOX300/500 series</li> <li>Supports PoE (with optional external PoE PSU120-259)</li> </ul>

# VAM700/VAM701



## Pin Definition



M12 A-coded  
8-Pin/ Female

Pin	10/100 Mbps	1000 Mbps
1	--	MDI 2+
2	--	MDI 3+
3	--	MDI 3-
4	TX-	MDI 0-
5	RX +	MDI 1+
6	TX +	MDI 0+
7	--	MDI 2-
8	RX-	MDI 1-

## Specifications

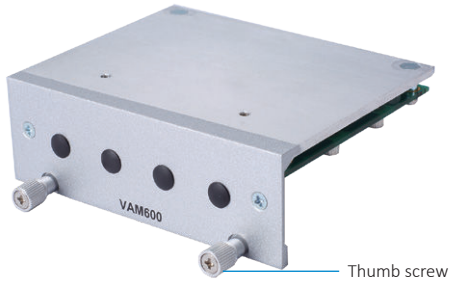
I/O Outlet	4 x M12 A-coded GbE LAN	
PoE Performance	4 x manageable M12 output max. 60W supports PoE & PoE+ <ul style="list-style-type: none"> <li>PoE (802.3af 15.4W/port), PoE+ (802.3at 30W/port)</li> <li>manageability in total power budget, port enable/disable</li> <li>Available with VAM701 and optional external PoE PSU120-259</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	LVD, FCC and EN 50155 certified; CE compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
LVD	EN 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
Shock	EN 50155 Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)	

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM700 (P/N: E277700100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 A-coded GbE LAN and to be used with tBOX300/500 series</li> </ul>
VAM701 (P/N: E277701100)	<ul style="list-style-type: none"> <li>Value-added module with 4 M12 A-coded GbE LAN and PoE, to be used with tBOX300/500 series</li> <li>Supports PoE (with optional external PoE PSU120-259)</li> </ul>

# VAM600



Thumb screw

## Specifications

I/O Outlet	4 x Antenna opening	
Expansion interface	2 x Full size Rev. 1.2 PCI Express Mini Card slot <ul style="list-style-type: none"> <li>• 1 x USB/PCIe with SIM socket</li> <li>• 1 x USB with SIM socket</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	LVD, FCC and EN 50155 certified; CE compliant	
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 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM600 (P/N: E277600100)	Value-added module with 4 antenna opening and 2 Full size Rev. 1.2 PCI Express Mini Card slot and to be used with tBOX300/500 series
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# VAM400



Thumb screw

## Specifications

I/O Outlet	4 x BNC video-in and 1 x BNC audio-in Supports FPS: NTSC/PAL (up to 120fps @960/720 x 480/ 100fps @960/720 x 576), H.264 video recording	
Expansion interface	2 x Full size Rev. 1.2 PCI Express Mini Card slot <ul style="list-style-type: none"> <li>• 1 x USB with SIM socket</li> <li>• 1 x USB/PCIe with SIM socket (occupied by 1 x Capture Card)</li> </ul>	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	EN 50155 and IEC 60945 certified; CE, LVD and FCC compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
	FCC	FCC part 15 B (Class A)
LVD	EN 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
	IEC 60945	IEC 60068-2-6
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

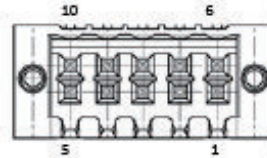
VAM400 (P/N: E277400100)	Value-added module with 4 BNC video-in and 1 BNC audio-in and to be used with tBOX300/500 series
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# VAM200



## Pin Definition



Pin	CN2	CN3
1	External power	COM+
2	DI_GND	COM-
3	DIO	DO0
4	DI1	DO1
5	DI2	DO2
6	DI3	DO3
7	DI4	DO4
8	DI5	DO5
9	DI6	DO6
10	DI7	DO7

## Specifications

I/O Outlet	1 x Terminal block isolated DIO 8-in/8-out	
Isolation Voltage	2kV	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral	
Certifications	LVD, FCC, EN 50155 and IEC 60945 certified; CE compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
LVD	EN 60950-1	
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
	IEC 60945	IEC 60068-2-6
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek's regional distributor

## Ordering Information

VAM200 (P/N: E277200100)	Value-added module with 1 terminal block isolated DIO 8-in/8-out and to be used with tBOX300/500 series
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# VAM101



Thumb screw

## Pin Definition



Pin	Signal	Pin	Signal
1	CAN1_HO	7	CAN3_HO
2	CAN1_LO	8	CAN3_LO
3	ISO1_GND	9	ISO3_GND
4	CAN2_HO	10	CAN4_HO
5	CAN2_LO	11	CAN4_LO
6	ISO2_GND	12	ISO4_GND

## Specifications

I/O Outlet	4 x Terminal block isolated CANBus 2.0A/B		
Isolation Voltage	2kV		
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral		
Certifications	LVD, FCC, EN 50155 and IEC 60945 certified; CE compliant		
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	
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4	
LVD	EN 60950-1		
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)		
	EN 50155	EN 61373 category 1 class B	
	IEC 60945	IEC 60068-2-6	
Shock	EN 50155	Half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)	

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

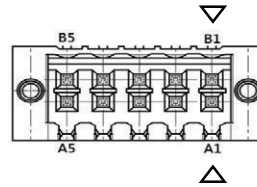
## Ordering Information

VAM101 (P/N: E277101100)	Value-added module with 4 terminal block isolated CANBus 2.0A/B and to be used with tBOX300/500 series
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# VAM100



## Pin Definition



Pin	Signal	RS-422	Signal
A1	GND	GND	GND
A2	RTS	RXN	NC
A3	TXD	RXP	NC
A4	CTS	TXN	DN
A5	RXD	TXP	DP
B1	GND	GND	GND
B2	RTS	RXN	NC
B3	TXD	RXP	NC
B4	CTS	TXN	DN
B5	RXD	TXP	DP

## Specifications

I/O Outlet	4 x Terminal block 4-wire isolated RS-232/422/485 COM		
Isolation Voltage	2kV		
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with tBOX500 series & Wide operating temperature peripheral -25°C to +70°C (-13°F to +158°F) with tBOX300 series & Wide operating temperature peripheral		
Certifications	LVD, FCC, EN 50155 and IEC 60945 certified; CE compliant		
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	
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4	
LVD	EN 60950-1		
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)		
	EN 50155	EN 61373 category 1 class B	
	IEC 60945	IEC 60068-2-6	
Shock	EN 50155	half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction) compliant	

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

VAM100 (P/N: E277100100)	Value-added module with 4 terminal block 4-wire isolated RS-232/422/485 COM and to be used with tBOX300/500 series
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# AX92160

Half-size PCI Express Mini Module with Accelerometer



Features	<ul style="list-style-type: none"><li>● Half-size PCI Express Mini module with multifunction sensory capabilities</li><li>● Accelerometer</li><li>● Gyroscope</li></ul>
Form factor	Half-size PCI Express Mini card
Controller	<ul style="list-style-type: none"><li>● ATmega32U4 8-bit Microcontroller</li></ul>
Dimension	27 x 30mm
I/O Connector	<ul style="list-style-type: none"><li>● SMBus (will be in the future revision of the module)</li><li>● I<sup>2</sup>C (will be in the future revision of the module)</li></ul>
Other Interface	<ul style="list-style-type: none"><li>● USB 2.0 through PCI Express Mini connector</li></ul>
Power Requirement	+3.3V through Mini-PCIe
Operating Temperature	-40°C to +85°C (-40°F to +185°F)
Operating System	Linux, Windows
Accelerometer Full Scale Range	±2g
MEMS Gyroscope Digital Output	±2000 °/sec

## Ordering Information

AX92160	Half-size PCI Express Mini Module with Accelerometer
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# AX92912

PoE Power Sourcing Equipment for tBOX300/tBOX500 Series



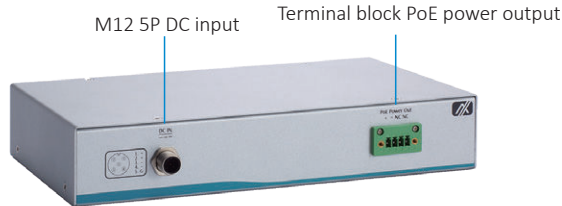
Features	<ul style="list-style-type: none"><li>• USB to audio as Mic-In/Line-In/Line-Out</li><li>• 2 individual audio coded to support 2 stereo input and output and Mic-in</li><li>• Supports one Full-size PCI Express Mini card slot (PCIe only)</li></ul>
From factor	Full-size PCI Express Mini card
Specification	2 Individual audio coded to support 2 stereo input and output and Mic-in (Audio with Mic-in/Line-in/Line-out)
Controller	Cmedia CM6510B controller
Dimension	51 x 30 mm
Accessory	1 x COM port cable, L=200 mm, 2 x 9-pin to D-sub9

## Ordering Information

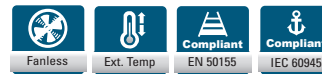
AX92912	Full-size PCI Express Mini module with Audio
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# PSU120-259

PoE Power Sourcing Equipment for tBOX300/tBOX500 Series



# PSU120-259 series





## Specifications

Power Source	1 x M12 5P DC input	
PoE Performance	1 x Terminal block PoE power output, maximum 120W (to be used with tBOX300/500 series and VAM PoE LAN series)	
Operating Temperature	-40°C to +60°C (-40°F to +140°F) with tBOX500 series & wide operating temperature peripheral -25°C to +60°C (-13°F to +140°F) with tBOX300 series & wide operating temperature peripheral	
Certifications	CE, FCC, EN 50155 and IEC 60945 compliant	
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
	IEC 60945	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
Vibration	3Grms with tBOX300/tBOX500 series (5 to 500Hz, X/Y/Z direction; random, operating)	
	EN 50155	EN 61373 category 1 class B
	IEC 60945	IEC 60068-2-6
Shock	EN 50155	half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction)

\*For more information of certification/EMC/Vibration/Shock as above, please contact Axiomtek 's regional distributor

## Ordering Information

### Standard

PSU120-259 Railway-24VDC (P/N: E276120101) Railway-48VDC (P/N: E276120102) Railway-96/110VDC (P/N: E276120103)	Fanless EN 50155 compliant PoE power sourcing equipment with 24/48/96/110 VDC-in supported	 For tBOX500/tBOX300 Railway series
PSU120-259 Marine-24VDC (P/N: E276120104)	Fanless IEC 60945 certified PoE power sourcing equipment with 24 VDC-in supported	 For tBOX500 Marine series

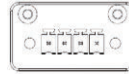
## Pin Definition



# M12 5P DC input

Pin	Signal
1	VCC
2	VCC
3	System GND
4	System GND
5	Chassis GND

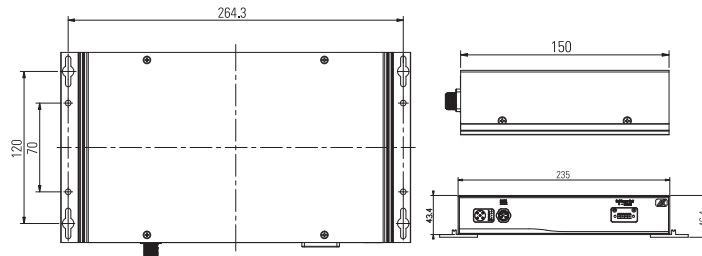
PoE Power Out  
+ - NC NC



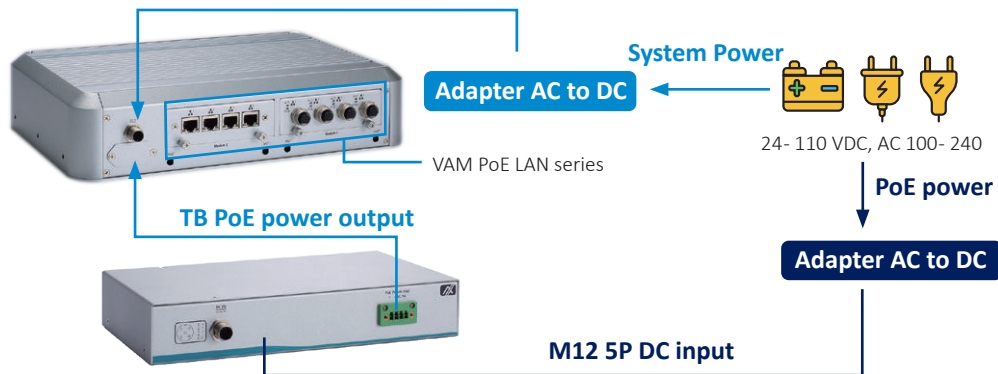
# TB PoE power output

Pin	Signal
1	VCC
2	System GND
3	NC
4	NC

## Dimensions



## Application Diagram



# Anti-Vibration Kit

PoE Power Sourcing Equipment for tBOX300/tBOX400/tBOX500 Series



## Features

- Equips multidirectional dampers
- Withstands extreme temperatures
- Extends product lifetimes
- Improves HDD stability
- Available for tBOX and UST Series
- Easy installation as wall mount
- Customisable for different application



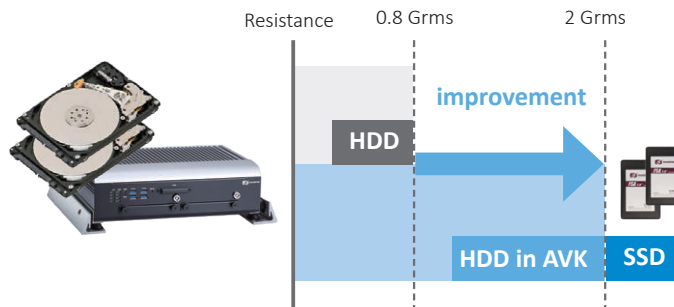
## Specifications

Standard Color	Silver
Construction	Aluminum extrusion and heavy-duty steel and damper
Operating Temperature	-10°C to +60°C (32°F to +140°F)
Vibration Reliability	2Grm with tBOX/UST systems equipping HDD (5 to 500Hz, X/Y/Z direction; random pulse shape, operating)

## Ordering Information

Anti-vibration Kit (P/N: 8816N5008A0E)	<ul style="list-style-type: none"><li>• For in-vehicle/rolling stock applicable systems which improves HDD/SSD stability</li><li>• To be used with tBOX300/324/500 &amp; UST500 series</li></ul>
Anti-vibration Kit (P/N: 8816N1000A0E)	<ul style="list-style-type: none"><li>• For in-vehicle/rolling stock applicable systems which improves HDD/SSD stability</li><li>• To be used with UST100/tBOX810</li></ul>

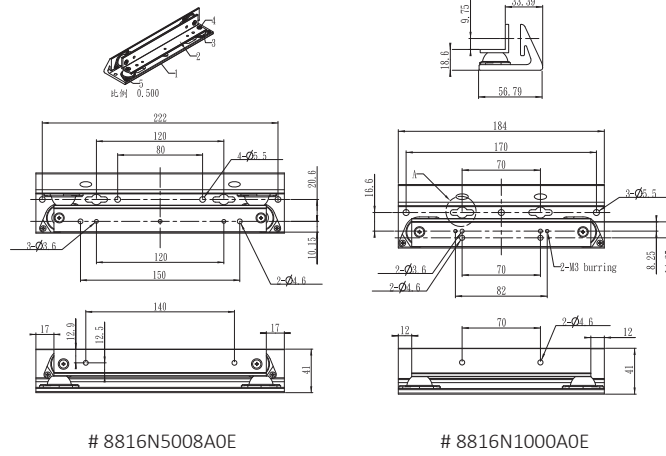
## HDD Anti-Vibration Improvement



\*For more information of vibration test, please contact Axiomtek 's regional distributor



## Dimensions

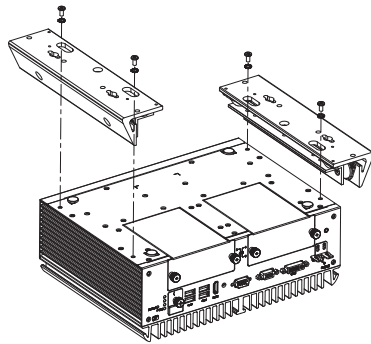


# 8816N5008AOE

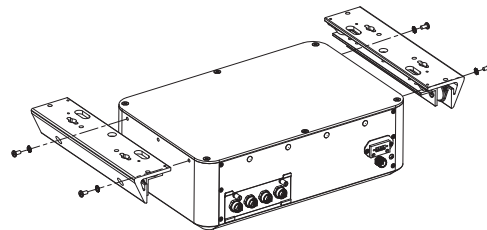
# 8816N1000AOE

## Application Diagram

\*Simply fasten the screw with the Anti-Vibration Kit in the wall mount screw holes on the system as illustration below.



# UST500 installation



# tBOX300 installation

# 3

## Transportation Touch Panel Computers & Monitors

Axiomtek's GOT700 series is designed as a train operator interface to inform the train engineer about the status of the train's functions during operation. It complies with the EMC, shock and vibration test requirements of the European standard EN 50155 for railway applications.

Selection Guide		74
<b>NEW</b> GOT715S	EN 50155 Compliant 15" XGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-25°C to +70°C)	76
GOT712S	EN 50155 S3 12.1" XGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-40°C to +70°C)	79
GOT710S	EN 50155 S3 10.4" SVGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-40°C to +70°C)	82
<b>NEW</b> P7180	18.5" Full HD Open Frame Railway Monitor for Passenger Information System (PIS)	85
P712	12.1" XGA TFT LCD Railway Touchscreen Monitor (-25°C to +55°C)	88
P710	10.4" XGA TFT LCD Railway Touchscreen Monitor (-25°C to +55°C)	91

## Intelligent Transportation Platforms

# Transportation Touch Panel Computers

## Selection Guide

NEW



Features\Models	GOT715S	GOT712S	GOT710S
Display	15" XGA TFT LCD, 800 nits	12.1" XGA TFT LCD, 800 nits	10.4" SVGA TFT LCD, 1000 nits
CPU Level	Intel Atom® processor E3845 1.91 GHz	Intel Atom® E3845 (1.91 GHz)	Intel Atom® E3845 (1.91 GHz)
Chipset	SoC integrated	SoC integrated	SoC integrated
System Memory	DDR3L 4GB onboard	DDR3L 4GB onboard	DDR3L 4GB onboard
I/O	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV) 2 x Isolated M12 X-coded GbE (isolation level 1.5kV) 1 x M12 A-coded USB 2.0 (2 port signal) 1 x M12 A-coded DC-in 1 x DB15 audio line-in, mic-in, speaker-out or line-out 1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV) 1 x Isolated DB9 CANbus (isolation level 1.5kV)	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV) 2 x Isolated M12 X-coded GbE (isolation level 1.5kV) 1 x M12 A-coded USB 2.0 (2-port signal) 1 x M12 A-coded DC-in 1 x DB15 audio line-in, mic-in, speaker-out or line-out 1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV) 1 x Isolated DB9 CANbus (isolation level 1.5kV)	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV) 2 x Isolated M12 X-coded GbE (isolation level 1.5kV) 1 x M12 A-coded USB 2.0 (2-port signal) 1 x M12 A-coded DC-in 1 x DB15 audio line-in, mic-in, speaker-out or line-out 1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV) 1 x Isolated DB9 CANbus (isolation level 1.5kV)
Storage	16GB flash onboard 1 x mSATA (occupied 1 PCI Express Mini Card)	16GB flash onboard 1 x mSATA (occupied 1 PCI Express Mini Card)	16GB flash onboard 1 x mSATA (occupied 1 PCI Express Mini Card)
Expansion Interface	2 x Full-size PCI Express Mini Card slot (slot2 for mSATA use only)	2 x Full-size PCI Express Mini Card slot (slot2 for mSATA use only)	2 x Full-size PCI Express Mini Card slot (slot2 for mSATA use only)
Touchscreen	5-wire resistive touchscreen	5-wire resistive touchscreen	5-wire resistive touchscreen
Operating System	Windows® 7/10, Windows® 10 IoT	Windows® 7/10, Windows® 10 IoT	Windows® 7/10, Windows® 10 IoT
Power Supply	Typical 24 to 110 VDC EN 50155 S3 20ms power interruption protection compliant	Typical 24 to 110 VDC EN 50155 S3 20ms power interruption protection	Typical 24 to 110 VDC EN 50155 S3 20ms power interruption protection
Power Consumption	24-110VDC, 1.28-0.26A	24-110VDC, 1.7-0.32A	24-110VDC, 1.4-0.29A
Watchdog Timer	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.	255 levels, 1 to 255 sec.
Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	IP65-rated aluminum front bezel and IP40-rated rear protection	IP65-rated aluminum front bezel and IP40-rated rear protection
Dimensions (W x D x H)	400 x 61.5 x 300 mm (15.75" x 2.42" x 11.81")	330 x 61.5 x 245 mm (12.99" x 2.42" x 9.65")	310 x 61.5 x 214 mm (12.20" x 2.42" x 8.43")
Weight (net/gross)	4.03 kg (8.89 lb) / 6.43 kg (14.18 lb)	2.95 kg (6.50 lb)/5.35 kg (11.79 lb)	2.6 kg (5.73 lb)/4.4 kg (9.7 lb)
Operating Temperature	-25°C to +70°C (-13°F to +158°F)	-40°C to +70°C (-40°F to +158°F)	-40°C to +70°C (-40°F to +158°F)
Mounting	Wall/VESA mount	Wall/VESA mount	Wall/VESA mount
Certifications	CE/FCC Class A, EN 50155 compliant	CE, FCC Class A, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 certified	CE, FCC Class A, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 certified UIC-612-01 Keypad layout compliant

# Transportation Monitors

## Selection Guide

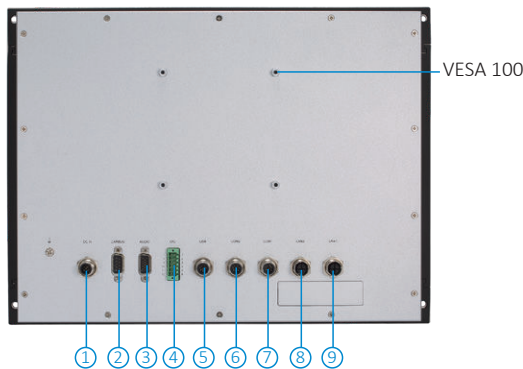
NEW



Features\Models	P7180	P712	P710
Display Type	18.5" FHD TFT LCD	12.1" XGA TFT LCD	10.4" XGA TFT LCD
Max. Colors	16.7M	16.7M	16.2M
Active Area (mm)	408.96 x 203.04	245.76 x 184.32	210.4 x 157.8
Max. Resolution	1920 x 1080	1024 x 768	1024 x 768
Pixel Pitch (H x V, mm)	0.213 x 0.213	0.24 x 0.24	0.0685 x 0.2055
Backlight	LED	LED	LED
Backlight MTBF (hrs)	50,000	50,000	50,000
Viewing Angle (H/V)	178°/178°	178°/178°	176°/176°
Response Time	20ms	25ms	25ms
Contrast Ratio	1000 (TYP)	1000 (TYP)	1000 (TYP)
Brightness (cd/m2)	500 nits	600 nits	500 nits
Display Control	OSD	OSD	OSD
I/O Connectors	1 x M12 A-coded Male 5-pin DC-in 1 x Remote control 1 x VGA 1 x HDMI 1 x DVI-D	1 x M12 A-coded Male 5-pin DC-in 1 x RS-232 for touch and remote control 1 x VGA 1 x HDMI 1 x DVI-D 1 x Line-in	1 x M12 A-coded Male 5-pin DC-in 1 x RS-232 for touch and remote control 1 x VGA 1 x HDMI 1 x DVI-D 1 x Line-in
Touchscreen	N/A	5-wire resistive touchscreen	5-wire resistive touchscreen
Power Consumption	24-110VDC, 1.4-0.29A	24-110VDC, 0.88-0.19A	24-110VDC, 0.6-0.13A
Power Supply	24 to 110 VDC power input	24 to 110 VDC power input	24 to 110 VDC power input
Dimensions (W x D x H)	442.6 x 46.2 x 266.8 mm (17.43" x 1.82" x 10.5")	330 x 50.2 x 245 mm (12.99" x 1.98" x 9.65")	310 x 49.2 x 214 mm (12.20" x 1.94" x 8.43")
Weight (net/gross)	3.41 kg (7.5 lb) /4.81 kg (10.6 lb)	2.3 kg (5.07 lb) /4.36 kg (9.62 lb)	1.85 kg (4.08 lb) /3.29 kg (7.26 lb)
Operating Temperature	-25°C to +55°C (-13°F to +131°F)	-25°C to +55°C (-13°F to +131°F)	-25°C to +55°C (-13°F to +131°F)
Mounting	Wall/VESA mount	Wall/VESA mount	Wall/VESA mount
Certifications	CE, FCC, EN 50155 compliant	CE, FCC, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 certified	CE, FCC, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 certified

# GOT715S NEW

EN 50155 Compliant 15" XGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-25°C to +70°C)



- |   |  |
|---|--|
| 1. DC power input                                   | 6. 1 x RS-232/422/485 with isolation 1.5kV |
| 2. CANbus with isolation 1.5kV                      | 7. 1 x RS-232/422/485 with isolation 1.5kV |
| 3. Audio (line-in, mic-in, speaker-out or line-out) | 8. 1 x GbE with isolation 1.5kV            |
| 4. DIO (6-in/2-out with isolation 1.5kV)            | 9. 1 x GbE with isolation 1.5kV            |
| 5. 2 x USB 2.0                                      |  |

## Features

- Sunlight readable 15" XGA TFT LCD with 800 nits of high brightness
- Fanless with Intel Atom® processor E3845 1.91 GHz
- All lockable connectors design
- Auto-dimming for different environments
- -25°C to +70°C wide temperature range
- Typical 24 to 110 VDC wide power input range and EN 50155 Class S3 20ms power interruption protection compliant
- EN 50155 design compliance



▲ Side view

## Introduction

The EN 50155 railway touchscreen panel PC, GOT715S, is equipped with a 15-inch XGA TFT LCD with high brightness LED backlight (800 nits), which allows a train operator to easily read any operational status messages, even under direct sunlight. Designed for railway application, this all-in-one 15-inch touch panel PC supports various power input from 24 to 110 VDC. This feature-rich panel PC has an IP65-rated front bezel, M12 connectors and EN 50155 design compliance.

### Wide Temperature (-25°C to +70°C)

The Intel Atom®-based railway panel PC, GOT715S, applies unique extended temperature technology with wide temperature range support as well as fanless operation. It also has a high brightness display and compact design for heavyduty environments.

### Designed for Railway Application

The GOT715S is particularly suitable for demanding HMI applications in the railway sector, including tasks like monitoring and controlling speed, temperature, and security, or for fleet management. To ensure the reliable operation in a variety of different locations, the 15-inch railway panel PC supports various mounting options such as wall mount and VESA mount. Moreover, it is also ready for Windows® 10 IoT and Windows® 10, and 7.

## Specifications

Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	
LCD Panel	Display Type	15" XGA TFT LCD
	Brightness (cd/m <sup>2</sup> )	800 nits
	Resolution	1024 x 768
	Viewing Angle (H/V)	178°/178°
Main System	CPU	Intel® Atom® processor E3845 1.91 GHz (Bay Trail)
	Chipset	SoC integrated
	System Memory	DDR3L 4GB onboard
	BIOS	AMI
	Storage	16GB flash onboard
	Watchdog Timer	255 levels, 1 to 255 sec.
	Onboard Graphics	Integrated in Intel® GFX
I/O Connector	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV)	
	2 x Isolated M12 X-coded GbE (isolation level 1.5kV)	
	1 x M12 A-coded USB 2.0 (2 port signal)	
	1 x M12 A-coded DC-in	
	1 x DB15 audio line-in, mic-in, speaker-out or line-out	
	1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV)	
1 x Isolated DB9 CANbus (isolation level 1.5kV)		
Expansion Interface	2 x PCI Express Mini Card slot (slot2 for mSATA use only)	
Touchscreen	5-wire resistive touchscreen	
Power Supply	Typical 24 to 110 VDC EN 50155 S3 20ms power interruption protection	
Power Consumption	24-110VDC, 1.28-0.26A	
Dimensions	400 mm (15.75") (W) x 61.5 mm (2.42") (D) x 300 mm (11.81") (H)	
Packing Dimensions	520 mm (20.47") (W) x 196 mm (7.72") (D) x 552 mm (21.73") (H)	
Weight (net/gross)	4.03 kg (8.89 lb) / 6.43 kg (14.18 lb)	
Operating Temperature	-25°C to +70°C (-13°F to +158°F)	
Relative Humidity	10%- 95% @ +40°C, non-condensing	
Certifications	CE/FCC Class A, EN 50155 compliant	

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

## Ordering Information

GOT715S-RA-M	15" XGA railway fanless touch panel computer with Intel Atom® E3845, sunlight readable LCD (800 nits), 5-wire resistive touchscreen,
(P/N: E22B715S00)	24 to 110 VDC power input

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

## Packing List

1 x GOT715S unit  
1 x Phoenix connector

## Optional Accessories

822B7100140E	GOT71X 3G+GPS kit
8812B7100A0E	GOT71X Wi-Fi kit
594B8122820E	M12 A-coded USB cable
594B7102100E	RS-232 cable
594B7102700E	M12 X-coded LAN cable
594B7100B00E	M12 DC-in power cable with ACC signal, length 1.8M

## Optional EOS Installation

WES 7

Windows® 10 (IoT)

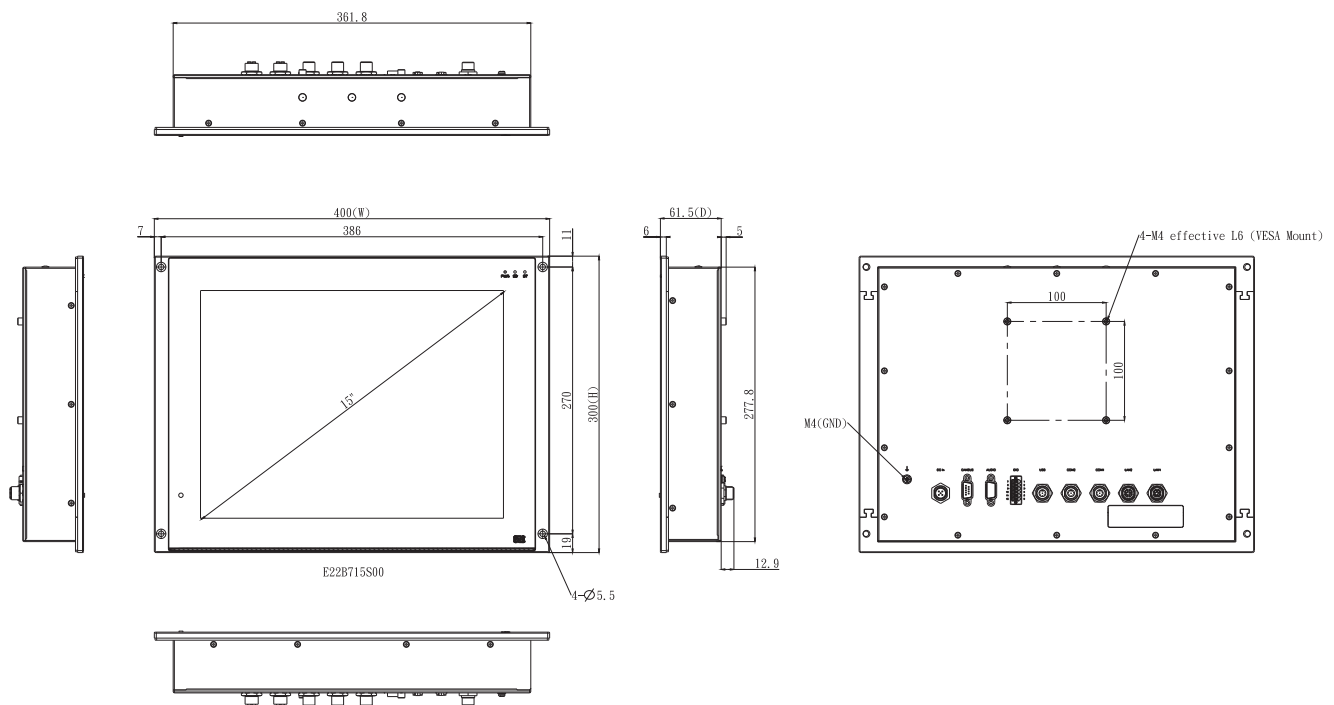
## Optional OS Installation

Windows® 7

Windows® 10

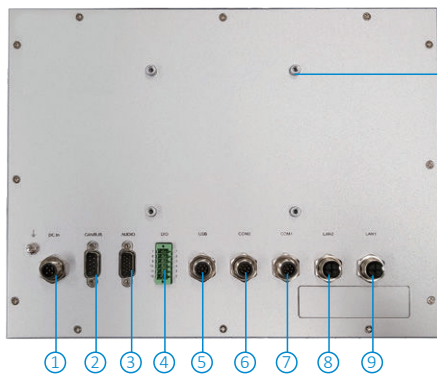
Windows® 10 IoT

## Dimensions



# GOT712S

EN 50155 S3 12.1" XGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845  
1.91 GHz (-40°C to +70°C)



VESA 100



## Features

- Sunlight readable 12.1" XGA TFT LCD with 800 nits of high brightness
- Fanless with Intel Atom® processor E3845 1.91 GHz
- All lockable connectors design
- Auto-dimming for different environments
- -40°C to +70°C wide temperature range
- Typical 24 to 110 VDC wide power input range, EN 50155 Class S3 20ms power interruption protection
- EN 50155, EN 45545-2 certified for railway application

- |   |  |
|---|--|
| 1. DC power input                                   | 5. 2 x USB 2.0                             |
| 2. CANbus with isolation 1.5kV                      | 6. 1 x RS-232/422/485 with isolation 1.5kV |
| 3. Audio (line-in, mic-in, speaker-out or line-out) | 7. 1 x RS-232/422/485 with isolation 1.5kV |
| 4. DIO (6-in/2-out with isolation 1.5kV)            | 8. 1 x GbE with isolation 1.5kV            |
|   | 9. 1 x GbE with isolation 1.5kV            |



▲ Side view

## Introduction

The EN 50155 railway touchscreen panel PC, GOT712S, is equipped with a 12.1-inch XGA TFT LCD with high brightness LED backlight (800 nits), which allows a train operator to easily read any operational status messages, even under direct sunlight. Designed for railway application, this all-in-one 12.1" touch panel PC supports various power input from 24 to 110 VDC. This feature-rich panel PC has an IP65-rated front bezel, M12 connectors and EN 50155 certified.

### Wide Temperature (-40°C to +70°C)

The Intel Atom®-based railway panel PC, GOT712S, applies unique extended temperature technology with wide temperature range support as well as fanless operation. It also has a high brightness display and compact design for transport heavyduty environment.

### Designed for Railway Application

The Axiomtek GOT712S is particularly suitable for demanding HMI applications in the railway sector, including tasks like monitoring and controlling speed, temperature, and security, or for fleet management. To ensure the reliable operation in a variety of different locations, the 12.1-inch railway panel PC supports various mounting options: wall mount and VESA mount. Moreover, it is also ready for Windows® 10 IoT, Windows® 10, and 7.



## Specifications

Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	
LCD Panel	Display Type	12.1" XGA TFT LCD
	Brightness (cd/m <sup>2</sup> )	800 nits
	Resolution	1024 x 768
	Viewing Angle (H/V)	160°/160°
Main System	CPU	Intel Atom® processor E3845 1.91 GHz (Bay Trail)
	Chipset	SoC integrated
	System Memory	DDR3L 4GB onboard
	BIOS	AMI
	Storage	16GB flash onboard 1 x mSATA
	Watchdog Timer	255 levels, 1 to 255 sec.
	Onboard Graphics	Integrated in Intel® GFX
I/O Connector	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV) 2 x Isolated M12 X-coded GbE (isolation level 1.5kV) 1 x M12 A-coded USB 2.0 (2 port signal) 1 x M12 A-coded DC-in 1 x DB15 audio line-in, mic-in, speaker-out or line-out 1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV) 1 x Isolated DB9 CANbus (isolation level 1.5kV)	
Expansion Interface	2 x PCI Express Mini Card slot (slot2 for mSATA use only)	
Touchscreen	5-wire resistive touchscreen	
Power Supply	Typical 24 to 110 VDC EN 50155 S3 20ms power interruption protection	
Power Consumption	24-110VDC, 1.7-0.32A	
Dimensions	330 mm (13") (W) x 61.5 mm (2.42") (D) x 245 mm (9.65") (H)	
Packing Dimensions	520 mm (20.47") (W) x 196 mm (7.72") (D) x 552 mm (21.73") (H)	
Weight (net/gross)	2.95 kg (6.50 lb)/5.35 kg (11.79 lb)	
Operating Temperature	-40°C to +70°C (-40°F to +158°F)	
Relative Humidity	10% to 95% @ +40°C, non-condensing	
Certifications	CE/FCC Class A, EN 50155, EN 50121-3-2, EN 61373, EN 45545-2	

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

## Ordering Information

GOT712S-R-E3845-24-110VDC (P/N: E22B712102)	12" XGA railway fanless touch panel computer with Intel Atom® E3845, sunlight readable LCD (800 nits), 5-wire resistive touchscreen and 24 to 110 VDC power input, S3 20ms power interruption protection
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\*Specifications and certifications may vary based on different requirements.

## Packing List

1 x GOT712S unit
1 x Phoenix connector

## Optional Accessories

822B7100140E	GOT712 3G+GPS kit
8812B7100A0E	GOT712 Wi-Fi kit
594B8122820E	M12 A-coded USB cable
594B7102100E	RS-232 cable
594B7102700E	M12 X-coded LAN cable
594B7100B00E	M12 DC-in power cable with ACC signal, length 1.8M

## Optional EOS Installation

WES 7

Windows® 10 (IoT)

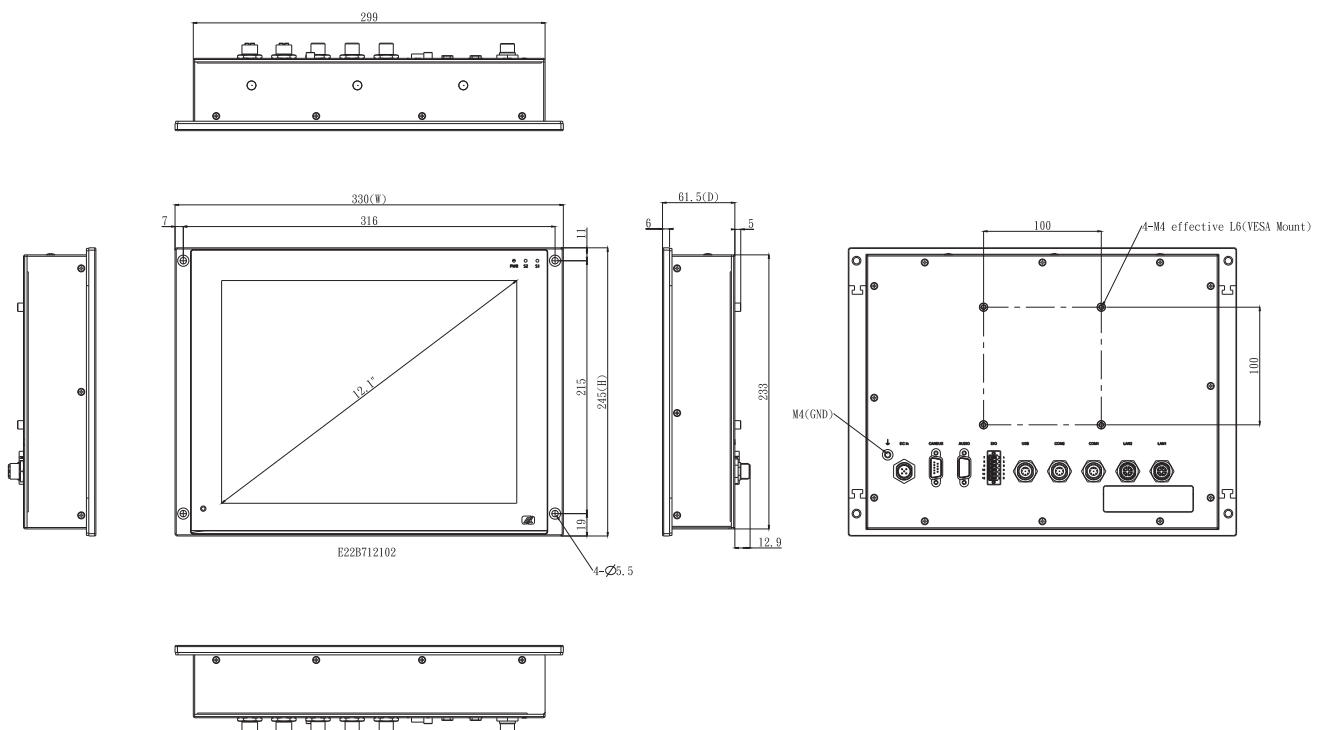
## Optional OS Installation

Windows® 7

Windows® 10

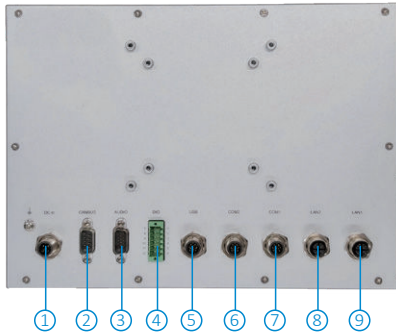
Windows® 10 IoT

## Dimensions



# GOT710S

EN 50155 S3 10.4" SVGA TFT LCD Railway Fanless Touchscreen Panel PC with Intel Atom® Processor E3845 1.91 GHz (-40°C to +70°C)



- |   |  |
|---|--|
| 1. DC power input with isolation 1.5kV              | 5. 2 x USB 2.0                             |
| 2. CANbus with isolation 1.5kV                      | 6. 1 x RS-232/422/485 with isolation 1.5kV |
| 3. Audio (line-in, mic-in, speaker-out or line-out) | 7. 1 x RS-232/422/485 with isolation 1.5kV |
| 4. DIO (6-in/2-out with isolation 1.5kV)            | 8. 1 x GbE with isolation 1.5kV            |
|   | 9. 1 x GbE with isolation 1.5kV            |

## Features

- Sunlight readable 10.4" SVGA TFT LCD with 1000 nits of high brightness
- Intel Atom® processor E3845 1.91 GHz
- Alternative keypad control in the front bezel
- M12-type lockable connectors design
- Auto-dimming for different environments
- -40°C to +70°C wide temperature range
- Typical 24 to 110 VDC wide power input range, EN 50155 Class S3 20ms power interruption protection
- EN 50155, EN 45545-2 certified for railway application



▲ Side view



▲ Touch without keypad version

## Introduction

The EN 50155 certified, GOT710S is equipped with a 10.4-inch SVGA TFT LCD with high brightness LED backlight (1000 nits), which allows a train operator to easily read any operational status messages, even under direct sunlight. Design for ease of use and maintenance, this all-in-one 10.4" railway touchscreen panel PC also has an alternative keypad control on the front bezel for easy access and cleaning purposes. This feature-rich panel PC has an IP65-rated front bezel, M12 connectors and is EN 50155 certified.

### Wide Temperature (-40°C to +70°C)

The Intel Atom®-based railway panel PC, GOT710S, applies unique extended temperature technology with wide temperature range support as well as fanless operation. It also has a high brightness TFT LCD display and compact design for transport heavy-duty environment.

### Designed for Railway Application

The Axiomtek GOT710S is particularly suitable for demanding HMI applications in the railway sector, including tasks like monitoring and controlling as speed, temperature, and security, or for fleet management. To ensure the reliable operation in a variety of different locations, the 10.4-inch railway panel PC supports various mounting options: wall mount and VESA mount. Moreover, it is also ready for Windows® 10 IoT, Windows® 10, and 7.

## Specifications

Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	
LCD Panel	Display Type	10.4" SVGA TFT LCD
	Brightness (cd/m <sup>2</sup> )	1000 nits
	Resolution	800 x 600
	Viewing Angle (H/V)	160°/160°
Main System	CPU	Intel Atom® processor E3845 1.91 GHz (Bay Trail)
	Chipset	SoC integrated
	System Memory	DDR3L 4GB onboard
	BIOS	AMI
	Storage	16GB flash onboard 1 x mSATA
	Watchdog Timer	255 levels, 1 to 255 seconds
	Onboard Graphics	Integrated in Intel® GFX
I/O Connector	2 x Isolated M12 A-coded RS-232/422/485 (isolation level 1.5kV)	
	2 x Isolated M12 X-coded GbE (isolation level 1.5kV)	
	1 x M12 A-coded USB 2.0 (2 port signal)	
	1 x M12 A-coded DC-in	
	1 x DB15 audio line-in, mic-in, speaker-out or line-out	
	1 x Isolated terminal block DIO (6-in/2-out, isolation level 1.5kV)	
	1 x Isolated DB9 CANbus (isolation level 1.5kV)	
Expansion Interface	2 x PCI Express Mini Card slot (slot2 for mSATA use only)	
Touchscreen	5-wire resistive touchscreen with or without keyboard	
Power Supply	Typical 24 to 110 VDC EN 50155 Class S3 20ms power interruption protection	
Power Consumption	24-110VDC, 1.4-0.29A	
Dimensions	310 mm (12.20") (W) x 61.5 mm (2.42") (D) x 214 mm (8.43") (H) (Excluding connectors and fixation dimensions, please refer to below drawing to get more details)	
Packing Dimensions	392 mm (15.43") (W) x 195 mm (7.68") (D) x 447 mm (17.60") (H)	
Weight (net/gross)	2.6 kg (5.73 lb)/4.4 kg (9.7 lb)	
Operating Temperature	-40°C to +70°C (-40°F to +158°F)	
Relative Humidity	10% to 95% @ +40°C, non-condensing	
Certifications	CE/FCC Class A, EN 50155, EN 50121-3-2, EN 61373, EN 45545-2 certified and UIC-612-01 Keypad layout complied	

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

## Ordering Information

### 24 to 110 VDC Power Input

GOT710S-R-E3845-24-110VDC (P/N: E22B710110)	10.4" SVGA railway fanless touchscreen panel PC with Intel Atom® E3845, sunlight readable LCD (1000 nits), 5-wire resistive touchscreen, 24 to 110 VDC power input, EN 50155 Class S3 20ms power interruption protection
GOT710S-R-E3845-24-110VDC with keypad (P/N: E22B710111)	10.4" SVGA railway fanless touchscreen panel PC with Intel Atom® E3845, sunlight readable LCD (1000 nits), 5-wire resistive touchscreen, 24 to 110 VDC power input, EN 50155 Class S3 20ms power interruption protection and keypad

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

## Packing List

1 x GOT710S unit  
1 x Phoenix connector

## Optional Accessories

822B7100140E	GOT710 3G+GPS kit
8812B7100A0E	GOT710 Wi-Fi kit
594B8122820E	M12 A-coded USB cable
594B7102100E	RS-232 cable
594B7102700E	M12 X-coded LAN cable
594B7100B00E	M12 DC-in power cable with ACC signal, length 1.8M

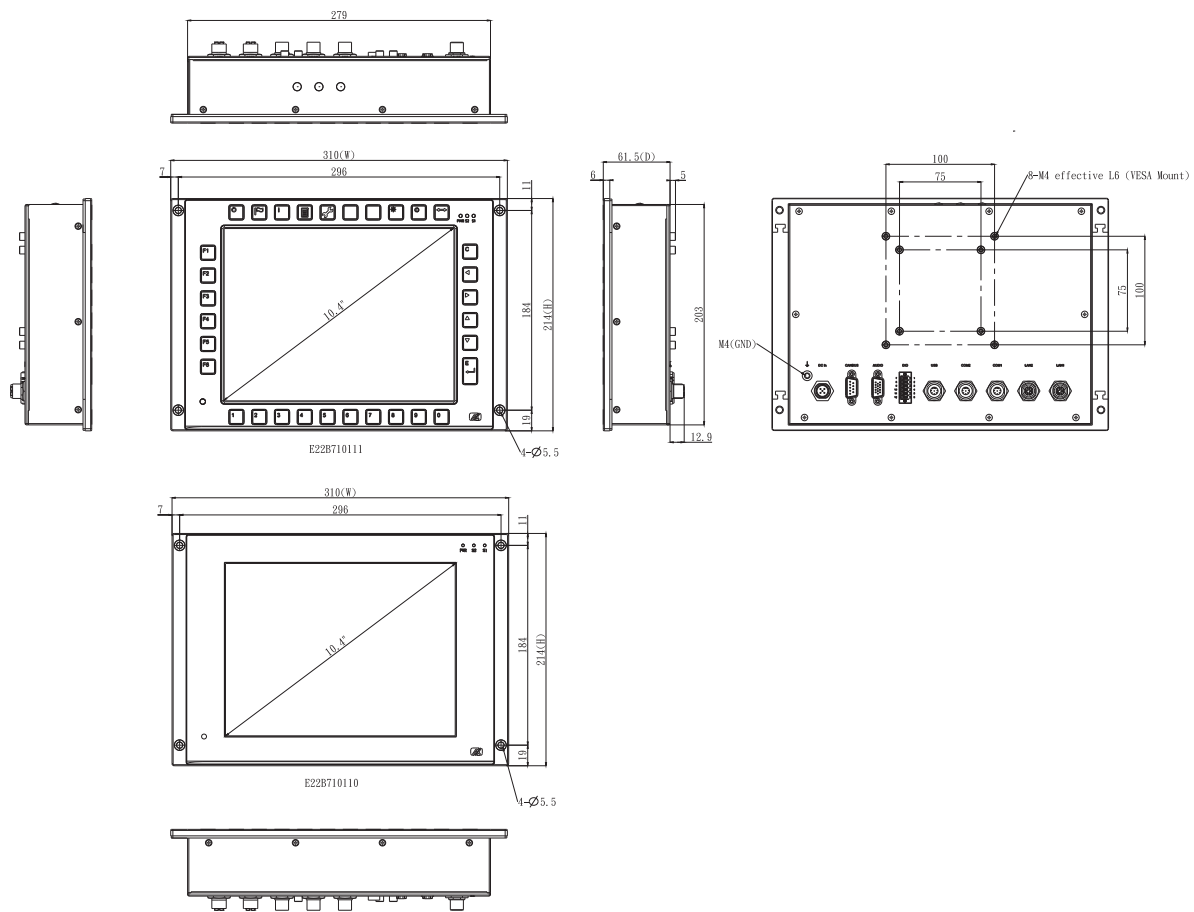
## Optional OS Installation

Windows® 7  
 Windows® 10  
 Windows® 10 IoT

## Optional EOS Installation

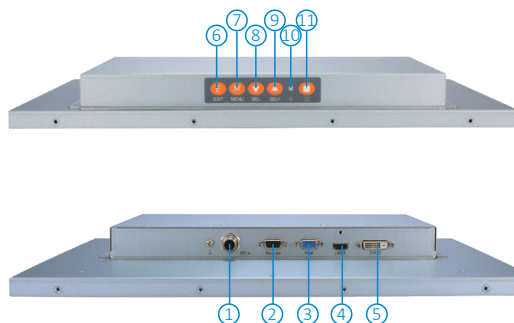
WES 7  
 Windows® 10 (IoT)

## Dimensions



# P7180 NEW

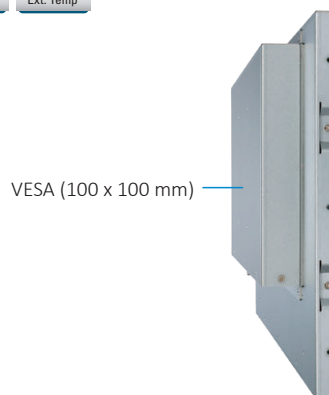
18.5" Full HD Open Frame Railway Monitor for Passenger Information System (PIS)



- |                                |              |                  |
|--------------------------------|--------------|------------------|
| 1. DC power input              | 5. 1 x DVI-D | 9. SEL+          |
| 2. 1 x RS-232 (remote control) | 6. Exit      | 10. Power LED    |
| 3. 1 x VGA                     | 7. Menu      | 11. Power switch |
| 4. 1 x HDMI                    | 8. SEL-      |                  |

## Features

- EN 50155 compliance
- 18.5" Full HD TFT LCD
- Wide viewing angle and high brightness of 500 nits
- HDMI, DVI-D and VGA video inputs
- 24 to 110 VDC power input
- Supports VESA arm (100 x 100 mm)
- -25°C to +55°C wide operating temperature range
- Supports 5 OSD keys



## Introduction

The P7180 is an EN 50155 compliance and slim-type monitor, which adopts 18.5-inch Full HD TFT LCD display with 500 nits of brightness and supports multi-signal video-in interfaces including HDMI, DVI-D and VGA. With the compact mechanism design and supporting VESA mounting, the P7180 is proper for Passenger Information System (PIS) in railway environments.

### Wide Temperature (-25°C to +55°C) & Wide DC Power Input

The P7180 supports a wide temperature range from -25°C to +55°C. Its fanless cooling system and wide range power input of 24V to 110V DC are suited for railway application as well as other harsh environments.

### High Brightness 500 nits with Wide Viewing Angle

The railway grade P7180 adopts a 18.5-inch TFT LCD display with 500 nits of brightness. With its wide viewing angle feature, passengers can easily view information from any angle.

### Anti-vibration for Railway

With the anti-vibration design and EN 50155 and EN 61373 Cat. 1 Class B compliant, the rugged 18.5" railway monitor can work perfectly on the rolling stock.

## Specifications

Mounting	VESA arm (100 x 100 mm)	
LCD Panel	Display	18.5" TFT LCD
	Max. Resolution	1920 x 1080
	Max. Colors	16.7M colors (8-bit)
	Active Area (mm)	408.96 (H) x 203.04 (V)
	Pixel Pitch (mm)	0.213 x 0.213
	Response Time	20ms
	Backlight	LED
	Viewing Angle (H/V)	178°/178°
	Contrast Ratio	1000 (TYP.)
	Brightness (cd/m <sup>2</sup> )	500 nits
Display Control	OSD (on screen display)	
Display Mode	720x400 70Hz	
	640x480 60Hz/72Hz/75Hz	
	800x600 56Hz/60Hz/72Hz/75Hz	
	1024x768 60Hz/70Hz/75Hz	
	1280x720 60Hz	
	1280x1024 60Hz/75Hz	
	1360x768 60Hz	
	1440x900 60Hz	
	1600x900 60Hz	
	1680x1050 60Hz	
1920x1080 60Hz		
Input Signal	HDMI	
	VGA	
	DVI-D	
I/O Connectors	1 x M12 A-coded Male 5-pin DC-in	
	1 x Remote control	
	1 x DVI-D	
	1 x VGA	
	1 x HDMI	
Power Supply	24 to 110 VDC	
Power Consumption	24-110VDC, 1.4-0.29A	
Dimensions	442.6 mm (17.43") (W) x 46.2 mm (1.82") (D) x 266.8 mm (10.5") (H)	
Packing Dimensions	575 mm (22.63") (W) x 170 mm (6.69") (D) x 460 mm (18.11") (H)	
Weight (net/gross)	3.41 kg (7.5 lb) /4.81 kg (10.6 lb)	
Operating Temperature	-25°C to +55°C (-13°F to +131°F)	
Relative Humidity	0%- 95%@ 45°C-non condensing	
Certifications	CE, FCC, EN 50155 compliant	

## Ordering Information

P7180-1-M (P/N: E226718100)	18.5" Full HD open frame railway monitor with 24 to 110 VDC power input for passenger information system
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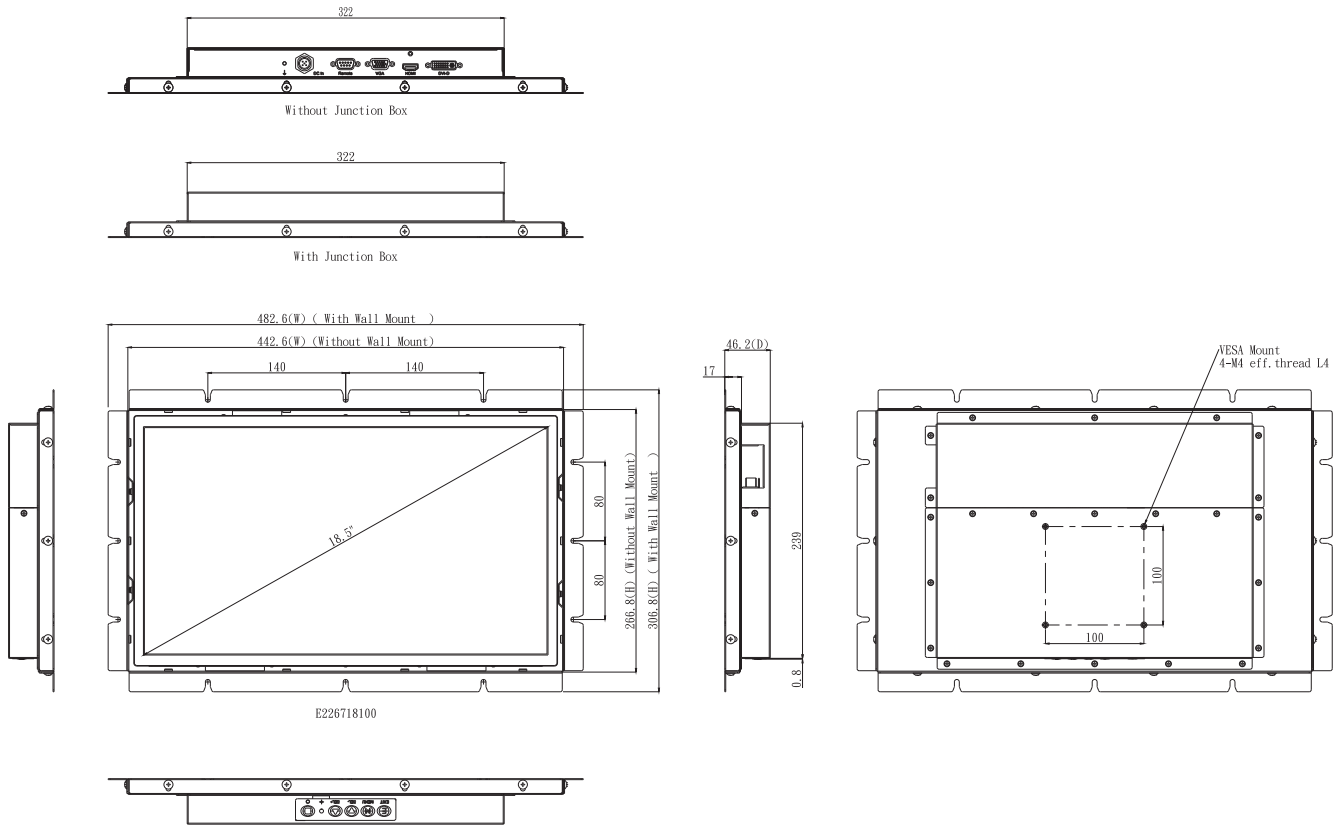
## Packing List

1 x P7180 unit  
 1 x HDMI bracket  
 1 x Cable tie  
 1 x Screw M3\*5L

## Optional Accessories

594B8120B30E	DC in cable M12 female 5P 180cm w/o ACC
88267181010E	P7180 JUNCTION BOX Kit
88267181020E	P7180 Wall Mount Kit

## Dimensions





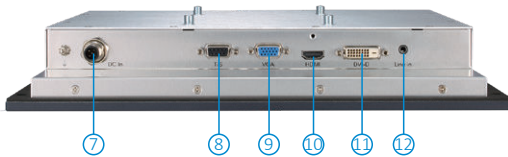
# P712

12.1" XGA TFT LCD Railway Touchscreen Monitor (-25°C to +55°C)



## Features

- EN 50155 and EN 45545-2 certified railway monitor
- 12.1" high brightness XGA TFT touchscreen LCD
- Wide viewing angle and a high brightness of 600 nits
- Supports VGA, DVI-D, and HDMI
- Light sensor for auto-dimming
- Typical 24 to 110 VDC wide power input
- -25°C to +55°C wide temperature range
- Supports 5 OSD keys on the front bezel



- |  |                 |
|--|-----------------|
| 7. DC power input                      | 11. 1 x DVI-D   |
| 8. 1 x RS-232 (touch & remote control) | 12. 1 x Line-in |
| 9. 1 x VGA                             | 13. Speaker     |
| 10. 1 x HDMI                           |                 |



## Introduction

The EN 50155 certified railway touchscreen monitor P712 adopts a 12.1-inch XGA TFT LCD with 600 nits brightness and a 5-wire resistive touchscreen with IP65-rated aluminum front bezel to provide protection against liquid damage and user friendly control interface.

### Wide Temperature (-25°C to +55°C)

The Axiomtek 12.1-inch railway touchscreen monitor supports a wide temperature range from -25°C to +55°C. Its fanless cooling system and compact designs are suited for rolling stock applications as well as other harsh environments.

### 600 nits High Brightness with Wide Viewing Angle

The railway-grade P712 adopts a high brightness of 600 nits 12.1-inch LCD with sunlight readable technology. The screen is legible even under strong sunlight. Additionally, with its wide viewing angle feature, users won't miss any information.

### Anti-vibration for Railway

With the anti-vibration design and EN 50155 and EN 61373 Cat. 1 Class B complied, the rugged 12.1" railway touchscreen monitor can work perfectly on a train.

## Specifications

Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	
LCD Panel	Display Type	12.1" XGA TFT LCD
	Max. Resolution	1024 x 768
	Max. Colors	16.7M/262k
	Active Area (mm)	245.76 (H) x 184.32 (V)
	Pixel Pitch (mm)	0.24 (H) x 0.24 (V)
	Response Time	25ms
	Backlight	LED
	Backlight MTBF	50,000 hrs
	Viewing Angle (H/V)	178°/178°
	Contrast Ratio	1000 (TYP.)
	Brightness (cd/m <sup>2</sup> )	600 nits
Display Control	OSD (on screen display)	
Display Mode	VGA 640 x 480 (60/72 Hz)	
	SVGA 800 x 600 (60/72 Hz)	
	XGA 1024 x 768 (60/70 Hz)	
Input Signal	VGA	
	HDMI	
	DVI-D	
	Line-in	
	Multi-function of T/S & remote control	
I/O Connectors	1 x M12 A-coded Male 5-pin DC-in	
	1 x Multi-function of T/S & remote control	
	1 x DVI-D	
	1 x VGA	
	1 x HDMI	
	1 x Line-in	
Power Supply	Typical 24 VDC to 110 VDC	
Power Consumption	24-110VDC, 0.88-0.19A	
Touchscreen	Thickness	Resistive: 2.2 mm
	Light Transmission	Resistive: 80%
	Touch Life	Resistive: 35 million touches
	Controller Interface	RS-232 D-type 9-pin male connector
Dimensions	330 mm (12.99") (W) x 50.2 mm (1.98") (D) x 245 mm (9.65") (H)	
Packing Dimensions	520 mm (20.48")(W) x 196 mm (7.72")(D) x 552 mm (21.74")(H)	
Weight (net/gross)	2.3 kg (5.07 lb)/4.36 kg (9.62 lb)	
Operating Temperature	-25°C to +55°C (-13°F to +131°F)	
Relative Humidity	20% to 90% @ +40°C, non-condensing	
Certifications	CE, FCC, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 certified	

## Ordering Information

P712-RS1-M (P/N: E226712100)	12.1" XGA LCD railway touchscreen monitor with 24 to 110 VDC power input
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\*Specifications and certifications may vary based on different requirements.

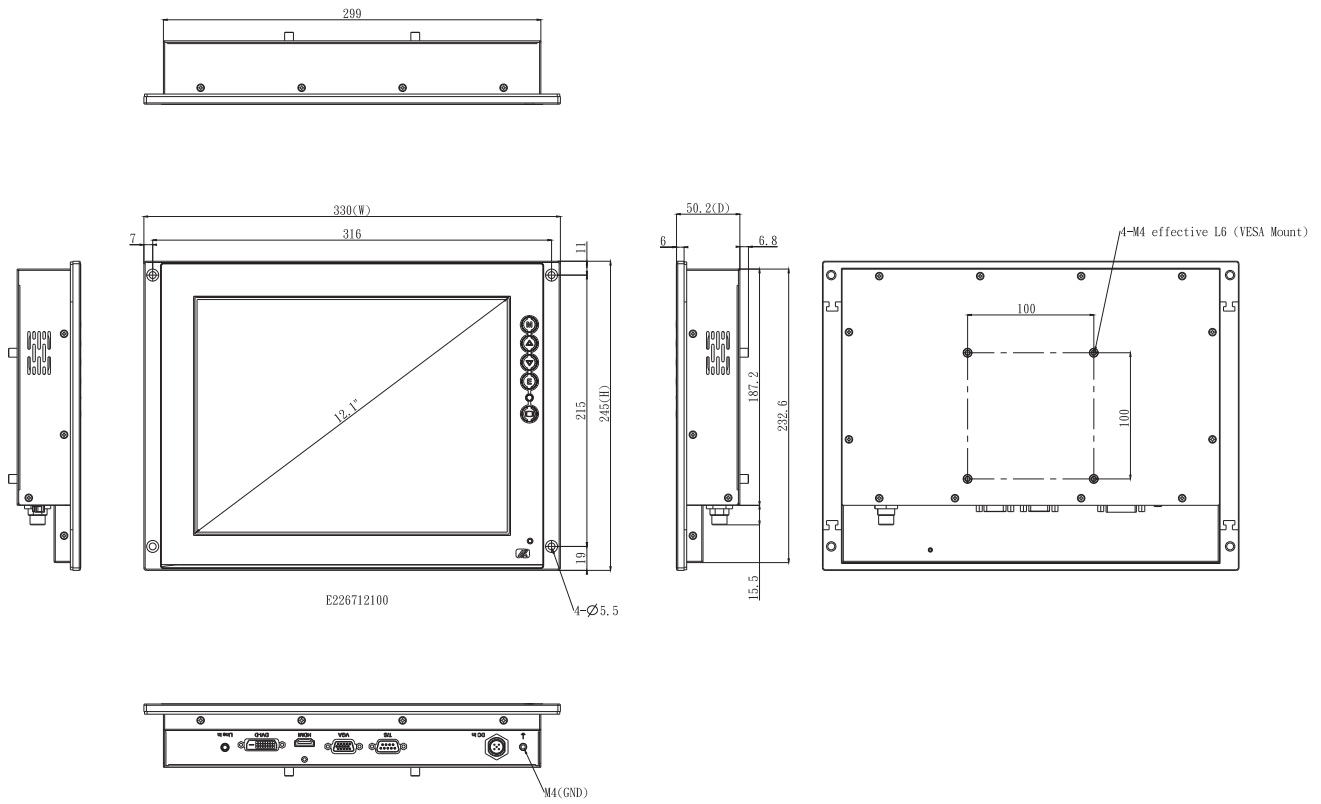
## Packing List

1 x P712 unit  
 1 x RS-232 cable (for resistive touch)  
 1 x HDMI bracket  
 1 x Cable tie  
 1 x Cable clamp  
 2 x Screw M3\*5L

## Optional Accessories

594B8120B30E	DC in cable M12 female 5P 180cm w/o ACC
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## Dimensions



# P710

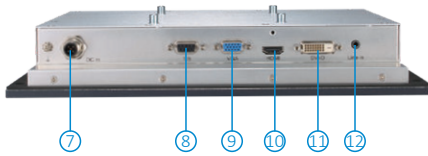
10.4" XGA TFT LCD Railway Touchscreen Monitor (-25°C to +55°C)



1. Menu
2. SEL+
3. SEL-
4. Exit
5. Power LED
6. Power switch

## Features

- EN 50155, EN 45545-2 certified railway monitor
- 10.4" high brightness XGA TFT touchscreen LCD
- Wide viewing angle and high brightness of 500 nits
- Supports VGA, DVI-D and HDMI
- Light sensor for auto-dimming
- Typical 24 VDC to 110 VDC wide power input range
- -25°C to +55°C wide temperature range
- Supports 5 OSD keys on the front bezel



- |  |                 |
|--|-----------------|
| 7. DC power input                      | 10. 1 x HDMI    |
| 8. 1 x RS-232 (touch & remote control) | 11. 1 x DVI-D   |
| 9. 1 x VGA                             | 12. 1 x Line-in |
|  | 13. Speaker     |



▲ Side view



▲ Rear view



13

## Introduction

The EN 50155 railway touchscreen monitor P710 adopts a 10.4-inch XGA TFT LCD with 500 nits brightness and a 5-wire resistive touchscreen with IP65-rated aluminum front bezel to provide water-proof and user friendly control interface.

The Axiomtek 10.4-inch railway touchscreen monitor adopts extended temperature technology with a wide range from -25°C to +55°C. Its fanless cooling system and compact designs are suited for rolling stock applications as well as other harsh environments.

### 500 nits High Brightness with Wide Viewing Angle

The railway grade P710 adopts a high brightness 500 nits 10.4-inch LCD with sunlight readable technology. The screen is legible even under strong sunlight. Additionally, with its wide viewing angle feature, users won't miss any information.

### Anti-vibration for Railway

With an anti-vibration design and complied to EN 50155, EN 61373 Cat. 1 Class B, the Axiomtek rugged 10.4" railway touchscreen monitor can work perfectly on the train.

## Specifications

Front Bezel	IP65-rated aluminum front bezel and IP40-rated rear protection	
LCD Panel	Display Type	10.4" TFT LCD
	Max. Resolution	1024 x 768
	Max. Colors	16.2M/262k
	Active Area (mm)	210.4 (H) x 157.8 (V)
	Pixel Pitch (mm)	0.0685 (H) x 0.2055 (V)
	Response Time	25ms
	Backlight	LED
	Backlight MTBF	50,000 hrs
	Viewing Angle (H/V)	176°/176°
	Contrast Ratio	1000 (TYP.)
	Brightness (cd/m <sup>2</sup> )	500 nits
Display Control	OSD (on screen display)	
Display Mode	VGA 640 x 480 (60/72 Hz)	
	SVGA 800 x 600 (60/72 Hz)	
	XGA 1024 x 768 (60/70 Hz)	
Input Signal	VGA	
	HDMI	
	DVI-D	
	RS-232 for touchscreen and IR remote control	
I/O Connectors	1 x RS-232 for touchscreen and remote control	
	1 x M12 DC-in	
	1 x DVI- D	
	1 x VGA	
	1 x HDMI	
	1 x Line-in	
Power Supply	Typical 24 VDC to 110 VDC	
Power Consumption	24-110VDC, 0.6-0.13A	
Touchscreen	Thickness	Resistive: 2.2 mm
	Light Transmission	Resistive: 80%
	Touch Life	Resistive: 35 million touches
	Controller Interface	RS-232 DB9 male connector
Dimensions	310 mm (12.20") (W) x 49.2 mm (1.94") (D) x 214 mm (8.43") (H)	
Packing Dimensions	392 mm (15.44") (W) x 195 mm (7.68") (D) x 447 mm (17.60") (H)	
Weight (net/gross)	1.85 kg (4.08 lb) / 3.29 kg (7.26 lb)	
Operating Temperature	-25°C to +55°C (-13°F to +131°F)	
Relative Humidity	20% to 90% @ +40°C, non-condensing	
Certifications	CE, FCC, EN 50155, EN 50121-3-2, EN 61373, and EN 45545-2 Certified	

## Ordering Information

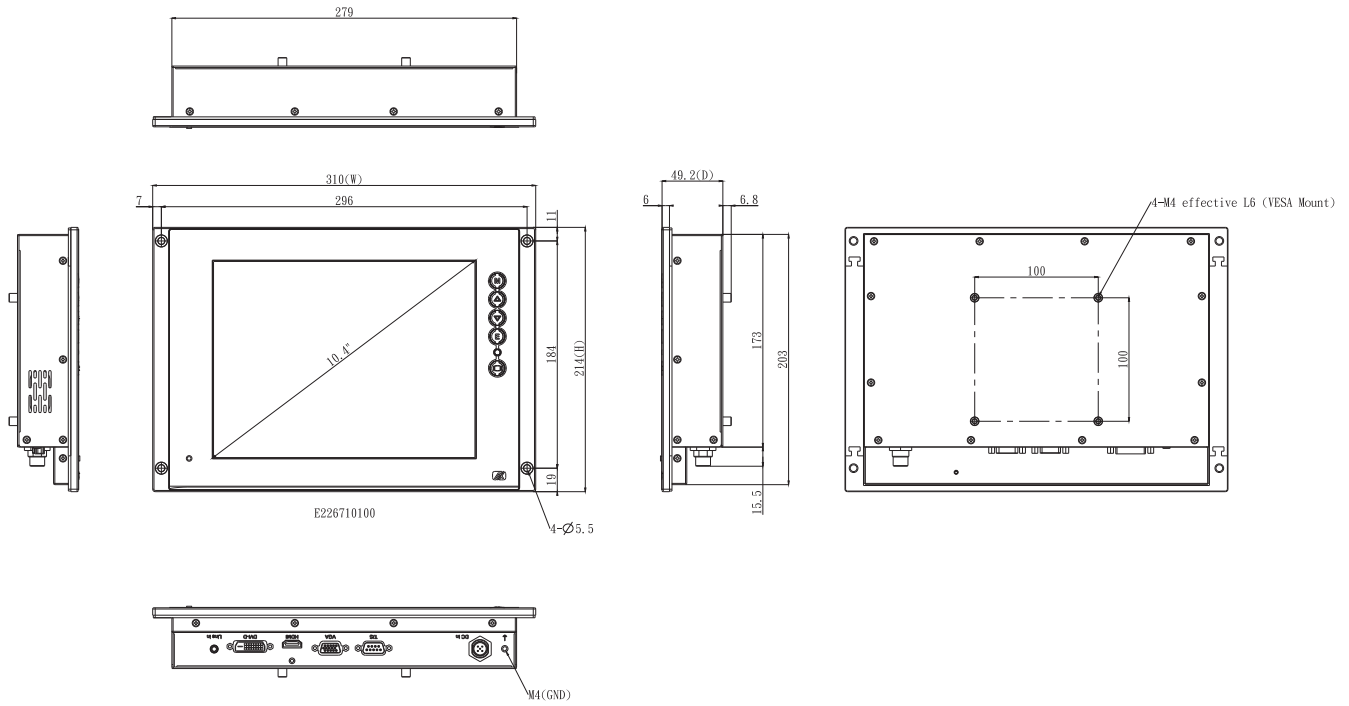
P710-RS1-M (P/N: E226710100)	10.4" XGA LCD railway touchscreen monitor with 24-110 VDC power input
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\*Specifications and certifications may vary based on different requirements.

## Packing List

1 x P710 unit
1 x RS-232 cable (for resistive touch)
1 x HDMI bracket
1 x Cable tie
1 x Cable clamp
2 x Screw M3*5L

## Dimensions





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