

ARS-2110

EN50155 Intel® Atom™ E3845 Fanless Box PC



Features

- Intel® Atom™ Processor E3845
- Dual Independent Display: VGA and DVI
- M12 connector for Ethernet and USB interfaces MiniPCIe Expansions, Wi-Fi, LTE, GSM-R and GPS RAID 0/1 Support (Expansion Slots)
- EN50155 Certified:
- Power Input Range Covers 24V/72V/110V (±40%)
- TX Temperature Level: -40 ~ 70 °C (85 °C for 10 minutes) with EN45545 Compliant
- EN50121 EMC Standards IEC61373 Body Mount Class B IP50 Rating

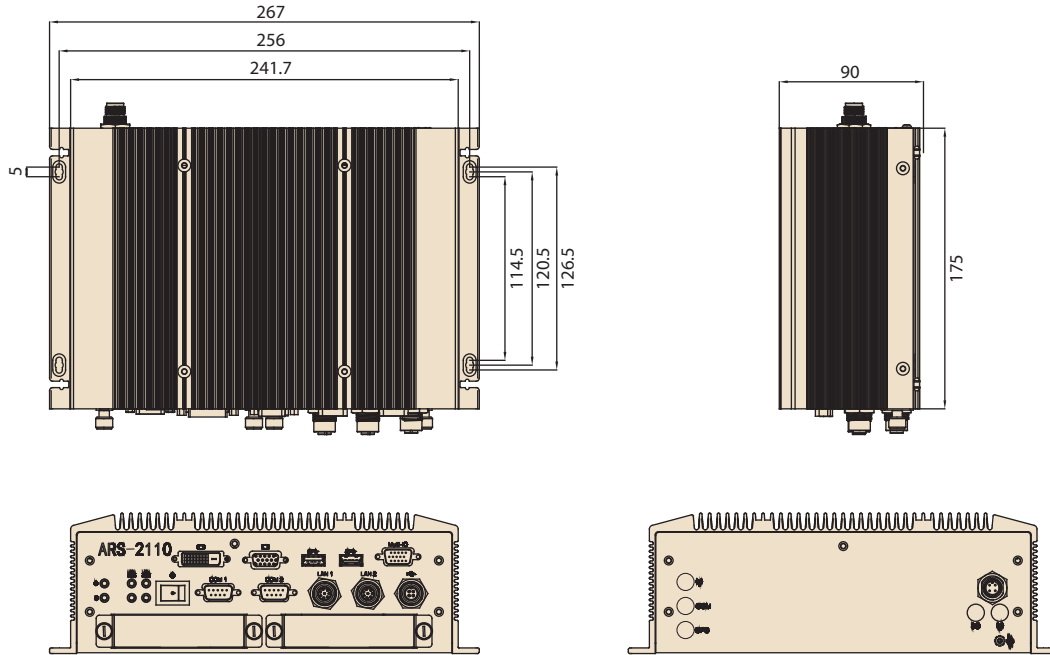
Specifications

Computing System	CPU	Intel® Atom™ E3845
	Max. Speed	Quad Core 1.91GHz
	L3 Cache System Chipset	2 MB
	System Chipset	Intel® Valleyview-D/I SoC Integrated
	BIOS	AMI EFI 64Mbit
	Memory	DDR3L 1333MHz 204-pin SODIMM (Default 4GB up to 8GB)
Storage	Internal	mSATA Socket x 1 (Default 32GB)
Graphics	Chipset	Intel® HD Graphics
	Graphic Engine	DirectX 11, OpenGL 3.2/4.X
	Dual Display	VGA + DVI
Ethernet	LAN1/ LAN2	10/100/1000 Mbps Intel I210 Ethernet Controller (M12 A coded)
Expansion Function	GPS	50 Channels with -160 dBm Sensitivity, A-GPS and Galileo Capable (Optional)
	Wi-Fi	Advantech 802.11abgn 2T2R, Wide-Temp Module(Optional)*
	WWAN	LTE/HSPA+/GPRS module (Optional)*
	GSM-R/ GPRS-R	Quad-band, GPRS Multi-slot Class 10, GSM Pahse2/ Phase2+ (Optional)
	G-Sensor	Digital Accelerometer Ultra Low Power, 10-bit Resolution
	Gyroscope	Turn Rate Sensor for Dead Reckoning (SPEED+ and FWD+ Signals on DB15 Connector)
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in, Line-in
I/O Interface	Serial Port	RS-232/422/485 Ports with Auto Flow Control x 2
	USB Interface	USB 3.0 x 1 (Type A x 1), USB 2.0 x 2 (Type A x 1, M12 x 1)
Expansion I/O	Optional Module	CAN Bus, Isolated Serial Port, Isolated Digital I/Os, Expansion Module for 2 x 2.5" SSD driver bay
Software	Microsoft	Windows 7, Windows 7 Embedded, Windows 10
	Linux	Ubuntu 16.04
	API	Advantech SUSIAccess
Power	Connector	M12 with 4 Poles
	Power Input Voltage	24 V _{DC} , 72 V _{DC} , and 110 V _{DC} (±40%) (Optional)
Physical Characteristics	Construction	Aluminum Housing
	Dimensions(W x H x D)	267 x 87.5 x 175 mm
	Weight	4.5Kg
Environment	Operating Temperature	EN50155 TX: -40 ~ 70 °C (85 °C for 10 Minutes)
	Storage Temperature	-40 ~ 85 °C
	Relative Humidity	95% @ 40 °C (Non-Condensing)
Certifications	Vibration/Shock	MIL-STD-810G, EN50155
	Railway Related	EN50155, EN50121, IEC61373
	EMC	CE/FCC Class A
	Safely Certification	UL
Other	Watchdog Timer	255 Levels Timer Interval (Setup by Software)

*Any module with mini PCIe interface can be integrated if either default Wi-Fi or WWAN function is not necessary.

Dimensions

Unit: mm



Ordering Information

Voltages	Part Number	Processor	DDR3L 4GB	mSATA 32G	VGA	DVI	Dual LAN	Dual COM	Dual USB	Audio	GSM-R	3G	Wi-Fi	GPS
24V	ARS-2110TX-10A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2111TX-10A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2112TX-10A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
72V	ARS-2110TX-30A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2111TX-30A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2112TX-30A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
110V	ARS-2110TX-40A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2111TX-40A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2112T3-40A1E	Intel® E3845	v	v	v	v	v	v	v	v	v	v	v	v

Optional Modules

Part Number	Product Description
AIO-SSD110-00A1E	Single SSD carrier with DIO for ARS-2510/ARS-2110
AIO-COM210-00A1E	Dual COM ports with isolation for ARS-2510/ARS-2110
AIO-CAN210-00A1E	Dual CAN ports with Isolation for ARS-2510/ARS-2110

For sales inquiries or additional information, please contact us at Rail@advantech.com.tw

ARS-2510

EN50155 Intel® Core™ i7 Fanless Box PC



Features

- 3rd Generation Intel® Core™ i7 3517UE Processor
- Dual Independent Display: VGA and DVI-D
- M12 Connector for Ethernet and USB Interfaces
- MiniPCIe Expansions, Wi-Fi, 3G/LTE, GSM-R and GPS
- RAID 0/1 Support (Expansion Slots)
- EN50155 Certified:
 - Power Input Range Covers 24V/48V/72V/110V (±40%)
 - T3 Temperature Level: -25°C~70°C (85°C for 10 minutes) with EN45545 Compliant
- EN50121 EMC Standards
- IEC61373 Body Mount Class B
- IP50 Rating

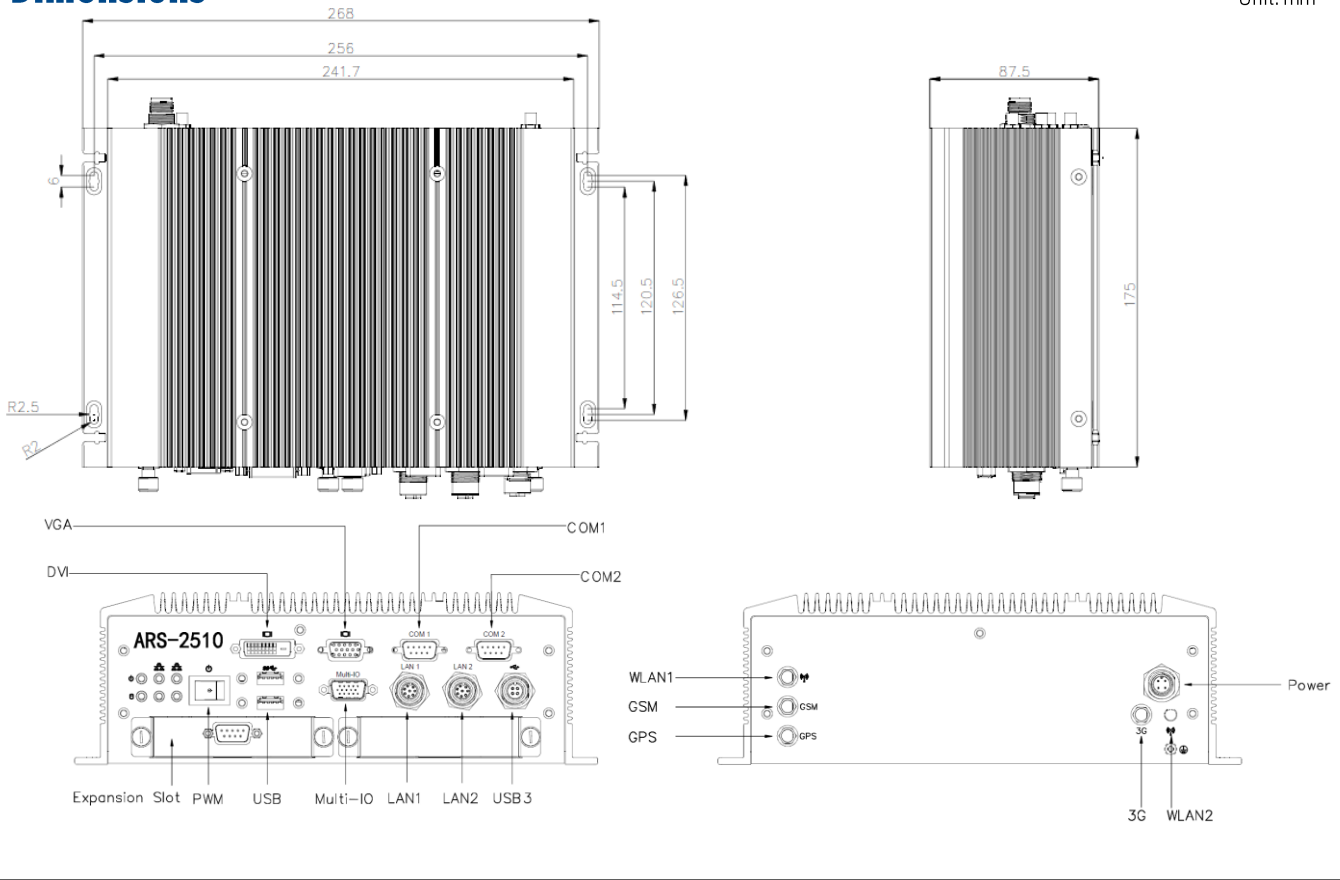
Specification

Computing System	CPU	Intel® ULV Core™ i7 3517UE
	Max Speed	Dual Core 1.7GHz (max 2.8GHz with Turbo Frequency)
	L3 Cache	4 MB
	System Chipset	Intel® QM77
	BIOS	AMI EFI 64Mbit
	Memory	DDR3 1600MHz, DDR3L 1333MHz 204-pin SODIMM (up to 8GB)
Storage	Internal	mSATA Socket x 1, CFAST Socket x 1
Graphics	Chipset	Intel QM77 Integrated GFX Gen 7
	Graphic Engine	DirectX 11, OpenGL 3.1, Open CL 11
	Video Resolutions	VGA up to 2048 x 1536 @ 75Hz, DVI up to 1920 x 1080
	Dual Display	VGA + DVI
Ethernet	LAN1	10/100/1000 Mbps Intel 82579LM Ethernet Controller (M12 connector)
	LAN2	10/100/1000 Mbps Intel 82583V Ethernet Controller (M12 connector)
Expansion Function	GPS	50 channels with -160dBm Sensitivity, A-GPS and Galileo Capable (Optional)
	Wi-Fi	Atheros AR9382 802.11 a/b/g/n (Optional)*
	WWAN	HSUPA Tri-Band and GSM Quad-band, up to 7.2Mbps downlink (Optional)*
	GSM-R/ GPRS-R	Quad-band, GPRS Multi-Slot Class 10, GSM Phase2/ Phase2+ (Optional)
	G-Sensor	Digital Accelerometer Ultra Low Power, 10-bit Resolution
	Gyroscope	Turn Rate Sensor for Dead Reckoning (SPEED+ and FWD+ Signals on DB15 Connector)
Audio	Interface	Realtek ACL892, High Definition Audio, Line-out, Mic-in, Line-in
I/O Interface	Serial Port	RS-232/422/485 Ports with Auto Flow Control x 2
	USB Interface	USB 3.0 x 2 (Type A x 2), USB 2.0 x 1 (M12 x 1)
Expansion I/O	Optional Module	CAN Bus, Isolated Serial Port, Isolated Digital I/Os, Expansion Module for 2 x 2.5" SSD Driver Bay
Software	Microsoft	Windows 7, Windows 7 Embedded
	Linux	2.6.xx
	API	Advantech SUSIAccess
	Intel iAMT	V8.0
Power	Connector	M12 with 4 Poles
	Power Input Voltage	24Vdc, 48Vdc, 72Vdc, 110Vdc (±40%) (Optional)
Physical Characteristics	Construction	Aluminum Housing
	Dimensions (W x H x D)	268 x 87.5 x 175 mm
	Weight	4.25kg ± 0.5kg
Environment	Operating Temperature	EN50155 T3: -25~70°C (85°C for 10 Minutes)
	Storage Temperature	-40 ~ 85°C
	Relative Humidity	95% @ 40°C (Non-Condensing)
Certifications	Vibration/Shock	MIL-STD-810G, EN50155
	Railway Related	EN50155, EN50121, IEC61373, EN45545
	EMC	CE/FCC Class A
	Safety Certification	UL
Other	Watchdog Timer	255 Levels Timer Interval (Setup by Software)

*Any module with mini PCIe interface can be integrated if either default Wi-Fi or WWAN function is not necessary.

Dimensions

Unit: mm



Ordering Information

Voltages	Part Number	Processor	DDR3L 4G	mSATA 32G	VGA	DVI	Dual LAN	Dual COM	Dual USB	Audio	GSM-R	3G	Wi-Fi	GPS
24V	ARS-2510T3-10A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2511T3-10A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2512T3-10A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
48V	ARS-2510T3-20A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2511T3-20A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2512T3-20A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
72V	ARS-2510T3-30A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2511T3-30A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2512T3-30A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
110V	ARS-2510T3-40A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2511T3-40A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v
	ARS-2512T3-40A1E	Intel® i7-3517UE	v	v	v	v	v	v	v	v	v	v	v	v

Optional Modules

Part Number	Product Description
AIO-SSD110-00A1E	Single SSD carrier with DIO for ARS-2510/ARS-2110
AIO-COM210-00A1E	Dual COM ports with isolation for ARS-2510/ARS-2110
AIO-CAN210-00A1E	Dual CAN ports with Isolation for ARS-2510/ARS-2110

Advantech provides customization services for expansion modules with desired I/O.

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ARS-2610

EN50155 Intel® i7-6600U/i7-7600U Fanless Railway Box PC



Features

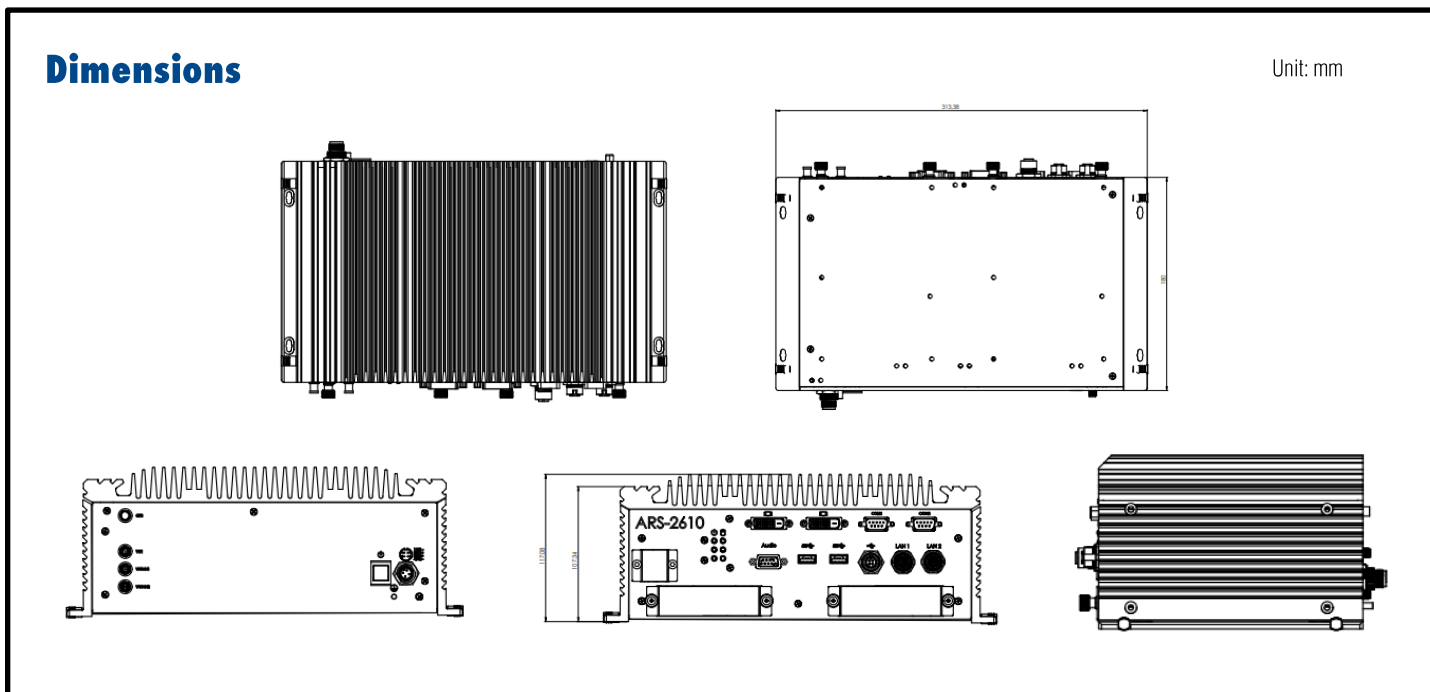
- Intel® 6th Generation i7-6600U/i7-7600U processor
- SO-DIMM DDR4 1600MHz/1866MHz, Up to 16GB
- Dual independent displays: DVI-D and DVI-D ports
- 2 x GbE LAN, 2 x USB and 2 x COM ports
- 2 x MiniPCIe and 1 x mSATA for expansion
- Supports GPS, Wi-Fi, 2 x LTE (Optional)
- Supports 2 x 2.5" SSD expansions and RAID 0/1 (Optional)
- EN 50155 Power input range: 24V/48V/72V/110V (±40%)
- EN 50155 TX temperature level: -40° C ~ 70° C (85° C for 10 Minutes)
- IP50+ and conformal coating protections
- EN 50155, IEC 60571 certified
- EN 45545, JIS E 5006 compliant

Specifications

Computing System	CPU	Intel®Dual Core i7-6600U Processor (3.40GHz) / Intel®Dual Core i7-7600U Processor (3.90GHz)
	BIOS	AMI EFI 64Mbit
	Memory	DDR4 1600MHz / 1866MHz 260-pin SODIMM (Up to 16GB)
Storage	mSATA	1 x mSATA socket
	SSD	Expansion Module for 2.5" SSD drive bay (Optional)
Graphics	Chipset	Intel®HD Graphics
	Graphic Engine	DirectX11, OpenGL 3.2/4.X
	Display Output	DVI-D / DVI-D
	Dual Display	Yes
Ethernet	LAN1.LAN2	10 / 100 / 1000 Mbps, Intel 210IT Ethernet controller (M12 X-coded connector)
Expansion Function	GPS	Yes (Optional)
	Wi-Fi	WLAN 802.11 a/b/g/n (Optional)
	LTE	2 x Cellular Module with Micro SIM slot (Optional)
Audio	Codec	Realtek ALC888, High Definition Audio
	Connector	Line-out, Mic-in, Line-in (DB9)
I/O Interface	Serial Port	2 x RS-232/422/485 ports with auto flow control
	USB	2 x USB 3.0 ports (Type-A)
Software	Microsoft	Windows 8.1, Windows 8 Embedded, Windows 10
	Linux	Linux 3.x
Power	Connector	M12 with 4 poles
	Power Input Voltage	24Vdc, 48Vdc, 72Vdc, 110Vdc (±40%, selectable)
Other	Watchdog Timer	255 Levels Timer Interval (Setup by software)
	Security	Hardware Embedded (Optional)
Environment	Operating Temperature	EN 50155 TX : -40°C ~70°C (85°C for 10 Minutes)
	Storage Temperature	-40°C to 85°C
	Relative Humidity	95% @40°C (Non-Condensing)
	Vibration. Shock	MIL-STD-810G, EN 50155
Physical Characteristics	Construction	Aluminum Housing
	Dimensions (W x H x D)	313 x 107 x 180mm / 12.3 x 4.2 x 7.1in
	Weight	6kg / 13.2lb
Certifications	Railway Related	EN 50155, EN 50121, IEC 61373, IEC 60571, (EN 45545, JIS E 5006 compliant)
	EMC. Safety	CE/FCC Class A. UL

Dimensions

Unit: mm



Front/Rear View



Ordering Information

Voltage	Part Number	Processor	DDR4 8GB	mSATA 32GB	Dual DVI	LAN	COM	USB	Audio	WWAN	Wi-Fi	GPS
24V	ARS-2610-10A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
48V	ARS-2610-20A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
72V	ARS-2610-30A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
110V	ARS-2610-40A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0

0: Optional

Optional Modules

Voltages	Part Number
AIO-SSD120-00A1E	Single SSD carrier with DIO 3In/3Out for ARS-26 Series
AIO-COM220-00A1E	Dual COM ports with isolation for ARS-26 Series
AIO-MVB120-00A1E	MVB ports with Isolation for ARS-26 Series
AIO-CAN220-00A1E	Dual CAN ports with Isolation for ARS-26 Series

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ARS-2620

EN 50155 Intel® i7-6600U/i7-7600U Fanless Railway Box PC



Features

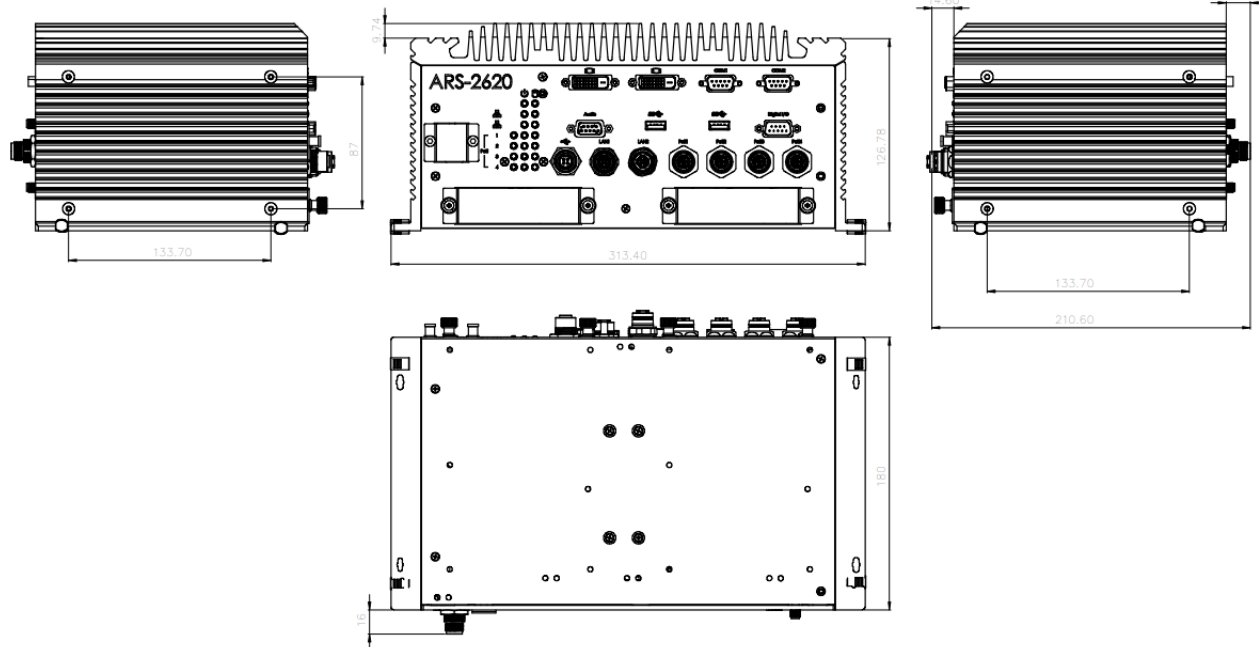
- Intel® 6th Generation i7-6600U/i7-7600U processor
- SO-DIMM DDR4 1600MHz/1866MHz, Up to 16GB
- Dual independent displays: DVI-D and DVI-D ports
- 6 x GbE LAN (4ports with POE), 3 x USB (1 x M12) and 2 x COM ports
- 2 x MiniPCIe and 1 x mSATA for expansion
- Supports GPS ,Wi-Fi, 2 x LTE (Optional)
- Supports 2 x 2.5" SSD expansions and RAID 0/1(Optional)
- EN 50155 Power input range: 24V/48V/72V/110V (±40%)
- EN 50155 TX temperature level: -40° C ~ 70° C (85° C for 10 Minutes)
- IP50+ and conformal coating protections
- EN 50155, IEC 60571 certified
- EN 45545, JIS E 5006 compliant

Specifications

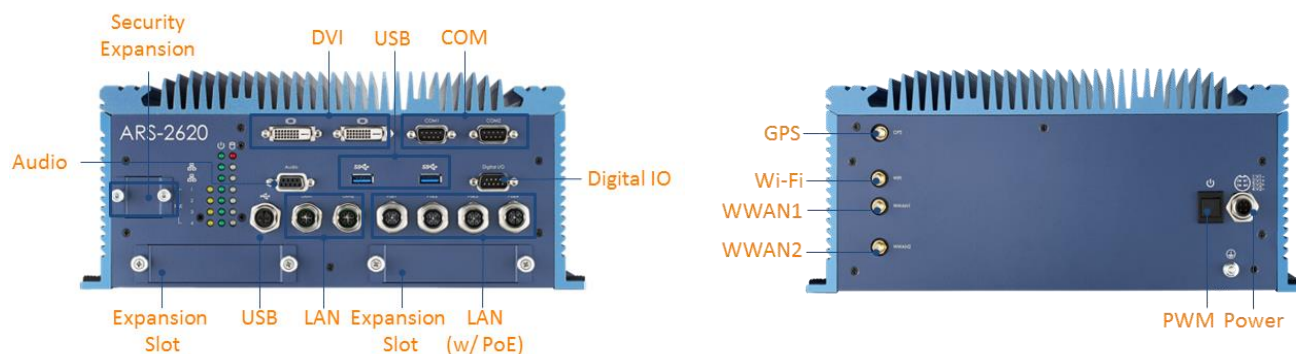
Computing System	CPU	Intel®Dual Core i7-6600U Processor (3.40GHz)/Intel®Dual Core i7-7600U Processor (3.90GHz)
	BIOS	AMI EFI 64Mbit
	Memory	DDR4 1600MHz / 1866MHz 260-pin SODIMM (Up to 16GB)
Storage	mSATA	1 x mSATA socket
	SSD	Expansion Module for 2.5" SSD drive bay (Optional)
Graphics	Chipset	Intel®HD Graphics
	Graphic Engine	DirectX11, OpenGL 3.2/4.X
	Display Output	DVI-D / DVI-D
	Dual Display	Yes
Ethernet	LAN1.LAN2	10 / 100 / 1000 Mbps , Intel 210IT Ethernet controller (M12 X-coded connector)
	LAN3-LAN6	10 / 100 / 1000 Mbps , Intel 210IT Ethernet controller, with POE 802.3 af (M12 X-coded connector)
Expansion Function	GPS	Yes (Optional)
	Wi-Fi	WLAN 802.11 a/b/g/n (Optional)
	LTE	2 x Cellular Module with Micro SIM slot (Optional)
Audio	Codec	Realtek ALC888, High Definition Audio
	Connector	Line-out, Mic-in, Line-in (DB9)
I/O Interface	Serial Port	2 x RS-232 / 422 / 485 ports with auto flow control
	USB	2 x USB 3.0 ports (Type-A), 1 x USB 2.0 (M12)
Digital I/O	Input/ Output	4-ch/ 4-ch, isolated (DB9)
Software	Microsoft	Windows 8.1, Windows 8 Embedded, Windows 10
	Linux	Linux 3.x
Power	Connector	M12 with 4 poles
	Power Input Voltage	24Vdc, 48Vdc, 72Vdc, 110Vdc (±40%, selectable)
Other	Watchdog Timer	255 Levels Timer Interval (Setup by software)
	Security	Hardware Embedded (Optional)
Environment	Operating Temperature	EN 50155 TX : -40°C ~70°C (85°C for 10 Minutes)
	Storage Temperature	-40°C to 85°C
	Relative Humidity	95% @40°C (Non-Condensing)
	Vibration. Shock	MIL-STD-810G, EN 50155
Physical Characteristics	Construction	Aluminum Housing
	Dimensions (W x H x D)	313 x 127 x 180mm / 12.3 x 5 x 7in
	Weight	7kg / 15.4lb
Certifications	Railway Related	EN 50155, EN 50121, IEC 61373, IEC 60571, (EN 45545, JIS E 5006 compliant)
	EMC. Safety	CE/FCC Class A. UL

Dimensions

Unit: mm



Front/Rear View



Ordering Information

Voltage	Part Number	Processor	DDR4 8GB	mSATA 32GB	Dual DVI	LAN	COM	USB	Audio	WWAN	Wi-Fi	GPS
24V	ARS-2620-10A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
48V	ARS-2620-20A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
72V	ARS-2620-30A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0
110V	ARS-2620-40A1E	Intel® i7-6600U	v	v	v	v	v	v	v	0	0	0

O: Optional

Optional Modules

Voltages	Part Number
AIO-SSD120-00A1E	Single SSD carrier with DIO 3In/3Out for ARS-26 Series
AIO-COM220-00A1E	Dual COM ports with isolation for ARS-26 Series
AIO-MVB120-00A1E	MVB ports with Isolation for ARS-26 Series
AIO-CAN220-00A1E	Dual CAN ports with Isolation for ARS-26 Series

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ITA-5231S

Intel® 6th Generation Core™ i Processor Fanless System; EN 50155 Compliant for Railway Applications



Features

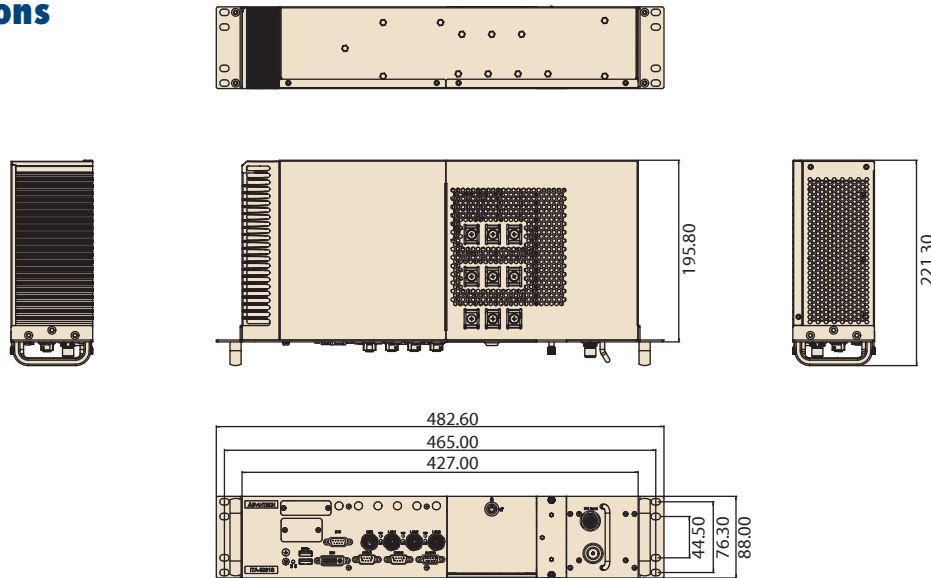
- Intel skylake-H platform with QM170
- Fanless computer for railway vehicle applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70° C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2/ EN 50121-4 EMC test standard
- Ruggedized connectors (M12) used for communication and power ports
- Support 4x2.5" HDD(15mm)

Specifications

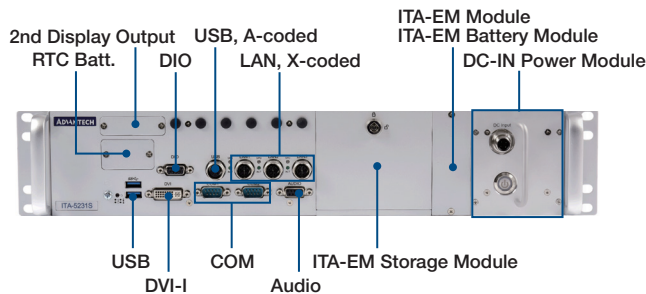
System Chipset	CPU	Intel® Core™ i7-6822EQ	i5-6442EQ	Celeron® G3902E
	Base Frequency/Turbo Boost	2.0/2.8 GHz	1.9/2.7GHz	1.6GHz/NA
	L3 Cache	8M	6M	2M
	Cores/Threads	4C/8T	4C/4T	2C/2T
	Chipset	QM170		
	BIOS	AMI SPI 128Mb		
Memory	Technology	8GB on board memory, DDR4 2133MHz		
	SODIMM slot	1		
	Max. Capacity	Up to 16GB		
Graphics	Chipset	Intel® HD Graphics 530, Celeron with Intel® HD Graphics 510		
	VRAM	Shared with system memory up to 512MB		
	Display	DVI-I: 1920x1200 @ 60Hz		
I/O	USB	2 x USB3.0 with Type A 1 x USB2.0 with M12 A-coded(F) 4-pin		
	Serial Port	2 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control		
	DIO	1 x DB9, 4-bit DI/ 4-bit DO with 2KV Isolation		
	Main Display	1 x DVI-I (Optional to DVI-D+VGA via Y cable)		
	Audio	1 x DB9, 1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in		
	Ethernet	Controller	Intel i210-IT /i219LM (Industrial)	
Interface		10/100/1000 Mbps		
Connector		Up to 3 x M12 X-coded(F), LAN1 with i219LM and LAN2/LAN3 with i210-IT		
Storage	HDD/SSD easy-swap module	4 x 2.5" SSD/HDD (15mm)		
	mSATA	1 x mSATA slot on board		
Others	Mini PCIe	3 x Mini PCIe Socket (Full size)		
	SIM card	2 x SIM slot		
LED & Button	LED	1 x power, 1 x storage, 1 x alert, 1 x BATT		
	Button	1 x power on/off switch 1 x reset button		
Power	Input Voltage	DC 24V input compliant with EN50155 class S2/C2 (optional DC 48/72/110V input)		
	Connector	1 x M12 S-coded(M) 4-pin		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1~255 sec/min		
Environment	Temperature	Operating (with Industrial/Wide-temperature SSD/mSATA) -40 ~ 70 °C		Non-operating -40 ~ 85 °C
	Humidity	5% ~ 95% @ 40 °C (Non-condensing)		
Mechanical	Dimension (W x H x D)	427 x 88 x 195.8 mm (16.81" x 3.46" x 7.71")/482.6 x 88 x 221.3 mm (19" x 3.46" x 8.71") with mounting kits		
	Install	Rack-mounting		
Certification	EMC	CE/FCC Class A, CCC		
	Safety	UL, CB, CCC		
EN 50155 Compliance	Ambient Temperature	EN 50155 TX (-40 ~ 70 °C)		
	Shock and Vibration	IEC 61373 body mount class B		
	Interruptions of Voltage Supply	Class S2		
	Supply Change Over	Class C2		
	EMC	EN 50121-4		

Dimensions

Unit: mm



Front View



Ordering Information

Voltage (M12-S-Male)	Part Number	Processor	Ethernet (M12-X-Female)	USB2.0 (M12-A-Female)	USB3.0 (Type A)	mini-PCIe	2.5" SSD	mSATA slot	COM	DIO	Display
24V _{DC}	ITA-5231S-L7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231S-L5A1E	i5-6442EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231S-L0A1E	G3902E	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
48V _{DC}	ITA-5231S-M7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231S-S7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
72/110V _{DC}	ITA-5231S-S5A1E	i5-6442EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I

ITA-5231 Series supports various I/O expansion. For more specifications, please contact your distributor or sales representative.

Optional List

P/N	Description
1700025295-31	USB cable: M12 A-code-> USB Type A,10cm
1700026432-21	LAN cable: M12 x-code-> RJ45,10cm
1700025857-21	Power cable: M12 S-code-> 2pin Terminal Block,10cm
1700004713	Y cable: DVI 29P(M) -> DVI 29P(F)+D-SUB 15P(F), 18cm

Note1: Only supports EN 50155 T2 class: -40 ~ 55 °C

ITA-5231W

Intel® 6th Generation Core™ i Processor Fanless System; EN 50155 Compliant for Railway Applications



Features

- H-series, 6th generation Intel® Core™ i7 platform with QM170
- Fanless computer for railway vehicle applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70 °C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2 EMC test standard
- Support 2 mini-PCIe and 4 M.2 sockets for GPS/3G/LTE/Wifi modules and 10 sets of SIM holders
- Support fast swap brackets for up to 18 SMA antennas assembly (18 QMA /12 N-type connector brackets optional)
- 1 set SMA antenna for GPS
- Supports easy-swap storage module with lock

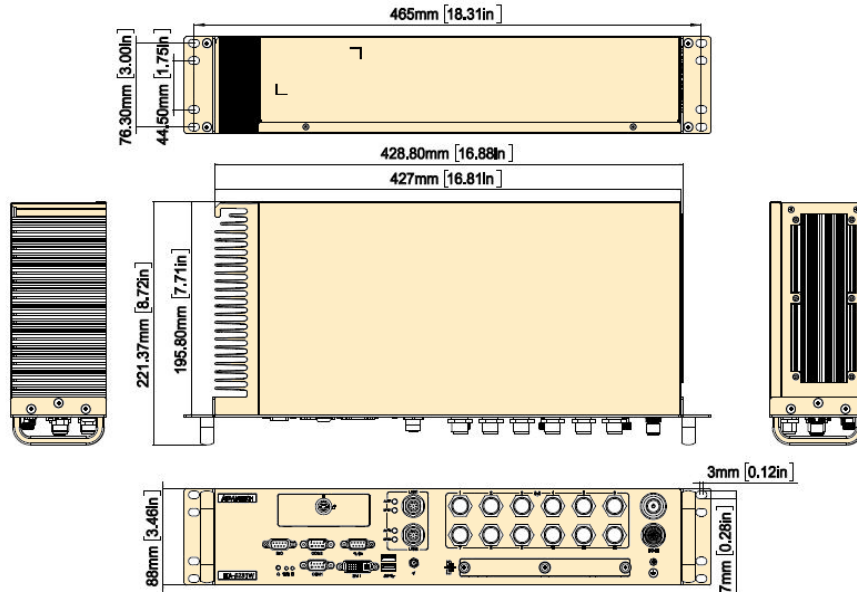


Specifications

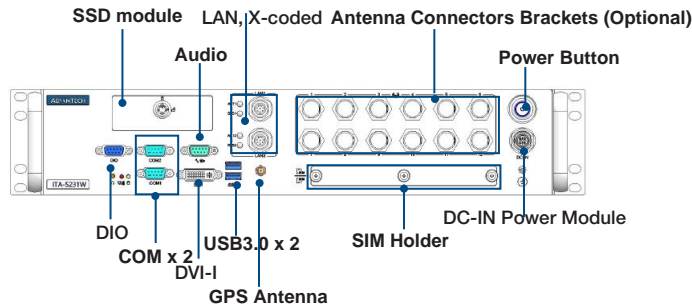
System Chipset	CPU	Intel® Core™ i7-6822EQ (25W), quad core	
	Base Frequency/Turbo Boost	2.0/2.8 GHz	
	L3 Cache	8M	
	Cores/Threads	4C/8T	
	Chipset	QM170	
	BIOS	AMI SPI 128Mb	
Memory	Technology	16GB on board memory, DDR4 2133MHz	
	SODIMM slot	1	
	Max. Capacity	Up to 32GB	
Graphics	Chipset	Intel® HD Graphics 530 [®]	
	VRAM	Shared with system memory up to 512MB	
	Display	DVI-I: 1920x1200 @ 60Hz	
I/O	USB	2 x USB3.0 with Type A	
	Serial Port	2 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control (optional)	
	DIO	1 x DB9, 8-bit bidirection GPIO, no isolation	
	Main Display	1 x DVI-I (Optional to DVI-D+VGA via Y cable)	
	Audio	1 x DB9, 1 x Speaker-out with 2 x 4W 40hm amplifier, 1 x Mic-in	
Ethernet	Controller	Intel i210-IT /i219LM (Industrial)	
	Interface	10/100/1000 Mbps	
	Connector	2 x M12 X-coded(F)	
Storage	HDD/SSD easy-swap module	Supports 1 x 2.5" SSD (Default setting)	
	M.2 for Storage	1 x M.2 slot on board	
Sockets	Mini PCIe	2 x Mini PCIe Socket (Full size) for LTE,GPS, WIFI, 1x Mini PCIe for GPS,WIFI	
	SIM card	Up to 12 SIM slots, 10 x SIM slots for Standard ITA-5231W	
	M.2 for LTE	4 x M.2 socket	
LED & Button	LED	1 x power, 1 x storage, 1 x alert	
	Button	1 x power on/off switch	
Power	Input Voltage	DC 24V input compliant with EN50155 class S2/C1 (optional DC 48/72/110V input)	
	Connector	1 x M12 S-coded(M) 4-pin	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1~255 sec/min	
Environment	Temperature	Operating (with Industrial/Wide-temperature SSD/M.2)	Non-operating
	Humidity	-40 ~ 70 °C	
Mechanical	Dimension (W x H x D)	428.8 x 88 x 195.8 mm/482.6 x 88 x 221.4 mm with mounting kits	
	Install	Rack-mounting	
Certification	EMC	CE/FCC Class A, CCC	
	Safety	UL, CB, CCC	
EN 50155 Compliance	Ambient Temperature	EN 50155 TX (-40 ~ 70 °C)	
	Shock and Vibration	IEC 61373 body mount class B	
	Interruptions of Voltage Supply	Class S2	
	Supply Change Over	Class C1	
	EMC	EN 50121-3-2	

Dimensions

Unit: mm



Front View



Ordering Information

Voltage (M12-S-Male)	Part Number	Processor	Ethernet (M12-X-Female)	USB3.0 (Type A)	mini-PCIe	Audio	2.5" SSD	M.2	COM	DIO	Display
24V _{DC}	ITA-5231W-L7A1	i7-6822EQ	2	2	3	1	1	5	2(Default)	8 bit GPIO	DVI-I
48V _{DC}	ITA-5231W-M7A1	i7-6822EQ	2	2	3	1	1	5	2(Default)	8 bit GPIO	DVI-I
72V _{DC}	ITA-5231W-H7A1	i7-6822EQ	2	2	3	1	1	5	2(Default)	8 bit GPIO	DVI-I
110V _{DC}	ITA-5231W-S7A1	i7-6822EQ	2	2	3	1	1	5	2(Default)	8 bit GPIO	DVI-I

Optional List

P/N	Description
1700026432-21	LAN cable: M12 x-code-> RJ45, 10cm
1700025857-21	Power cable: M12 S-code-> 2pin Terminal Block, 10cm
1700004713	Y cable: DVI 29P(M) -> DVI 29P(F)+D-SUB 15P(F), 18cm

P/N	Description
1960088611N021	QMA ant-bkt silver for ITA-5231W

Note2: SMA(Default) and N-type(Accessory box), QMA optional

P/N	Description
1750008653-01	Cable Ant. SMA/F-R BH MHF4/113 BLK 200mm
1750006264	Antenna SMA(F)/MHF 15cm SMALFN8-3150A-00X00R
1750008999-01	Cable Ant. QMA/F-BH MHF4/137 BLK 200mm
1750008998-01	Cable Ant. QMA/F-BH MHF1/137 BLK 200mm
1750008974-01	Cable Ant. N-type/F-BH MHF4/ 081 BLK L265mm
1750006631	Antenna Cable L-265mm 00NFN8-3265A-00X00R

Note1: Antenna Type selection: SMA/QMA/N-type

ITA-5512

Intel® Atom™ E3950 Fanless Compact System; EN 50155 Compliant for Railway Applications

NEW

Fully Compliant with
EN 50155



Features

- Built-in Intel® Atom™ quad-core processor
- Fanless computer for railway vehicle compact system for rolling stock applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70 °C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2 EMC test standard
- Supports Easy-swap SSD module
- Optional DC 24V/48V/72V/110V Input
- Support Ingress Protection 65

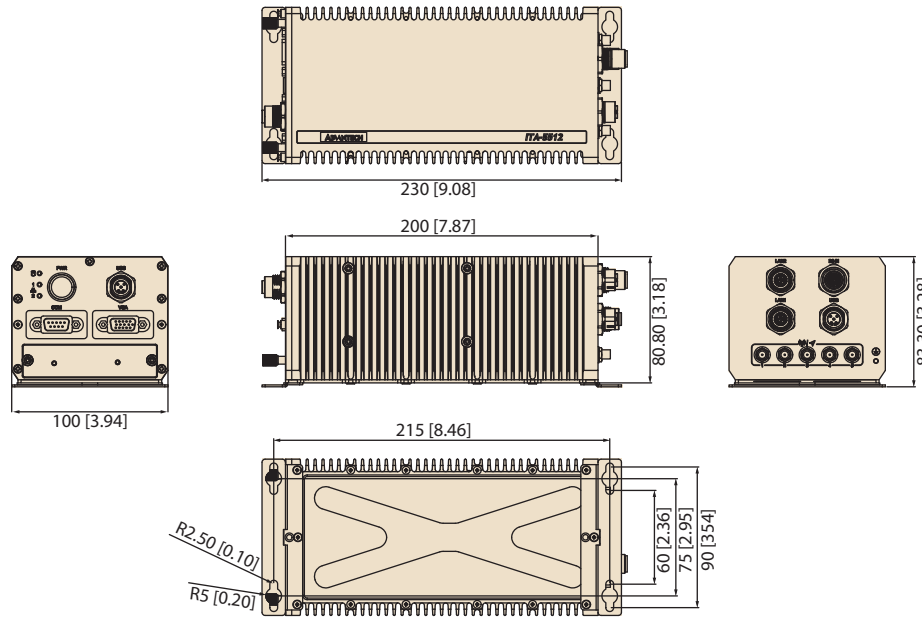


Specifications

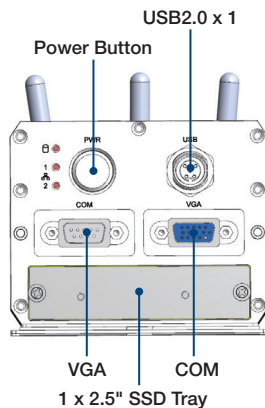
Processor System	CPU	Intel® Atom™ X7-E3950 quad-core processor, TDP 12W	
	Max Speed	Up to 2.0 GHz	
	L2 Cache	2MB	
	BIOS	AMIR SPI 64 Mb	
Memory	Technology	on board 4G memory, DDR3L 1866MHz	
	Capacity	Up to 8GB	
Graphics	Chipset	Intel® HD Graphics 505	
	Display ports	1 x VGA	
Ethernet	Controller	2 x Intel® I210-IT	
	Interface	10/100/1000 Mbps	
	Connector	2 x M12 X-coded(F)	
Storage	SSD/SSD	1 x 2.5" SSD	
	mSATA	1 x mSATA slot on M/B	
Others	GPS	1 (optional)	
Front I/O	USB	2 x USB2.0 with M12 A-coded	
	Serial Port	1 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control	
	Display	1 x VGA	
Rear I/O	LAN	2 x LAN with M12 X-coded(F)	
Expansion Slots	Mini PCIe	1 x Mini PCIe and 1x M.2 with 1 x SIM slot	
Power Input	Input Voltage	DC 110V input compliant with EN50155 class S2/C1 (Optional DC 24/48/72V input)	
	Connector	1 x M12 A-coded(M) 4-pin	
Watch Dog	Output	System reset	
	Interval	Programmable 1 ~ 255 sec/min	
Environment	Temperature	Operating	Storage
		-40 ~ 70 °C	-40 ~ 85 °C
	Relative Humidity	5~ 95% @ 40 °C non-condensing	0 ~ 95% @ 40 °C non-condensing
	Maximum vibration	2Grms (5-500Hz), 1Grms (5-500Hz)	2Grms
	Maximum shock	20G w/ SSD, DOM; 10G w/ HDD	30G
Mechanical	Dimensions (W x H x D)	215 x 100 x 80 mm	
	Installation	Wall-mount by mounting bracket	
Certification	EMC	CE/FCC Class A, CCC, BSMI	
	Safety	UL, CB, CCC, BSMI	
EN50155 Compliance	Ambient Temperature	EN 50155 Tx (-40 ~ 70 °C)	
	Shock and Vibration	IEC 61373 body mount class B	
	Interruptions of Voltage Supply	Class S2	
	Supply Change Over	Class C1	
	EMC	EN 50121-3-2	

Dimensions

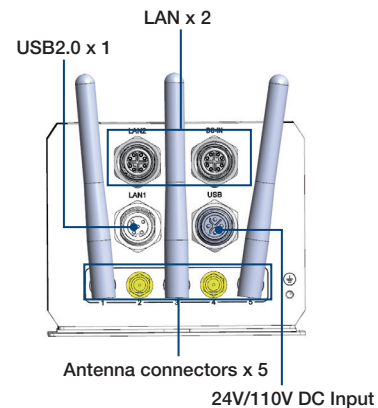
Unit: mm [inch]



Front View



Rear View



Ordering Information

product name	CPU	Memory	Ethernet (M12 X-code)	USB2.0	MiniPCle	M.2	Storage	COM	VGA	Voltage
ITA-5512-LOA1	X7-E3950	8G onboard	2	2	1	1	1	1	1	24V
ITA-5512-SOA1	X7-E3950	8G onboard	2	2	1	1	1	1	1	110V

Optional Accessories

M12 Cable (Must purchase separately)

Part Number	Description
1700023142-01	M Cable USB-A 4P(F)/Waterproof 4P(F) 10cm
1700026432-21	LAN cable: M12 x-code-> RJ45,10cm
1700029923-01	M cable plug-in 5P-5.0/Waterproof 4P 10cm

ITA-5231

Intel® 6th Generation Core™ i Processor Fanless System; EN 50155 Compliant for Railway Applications



Features

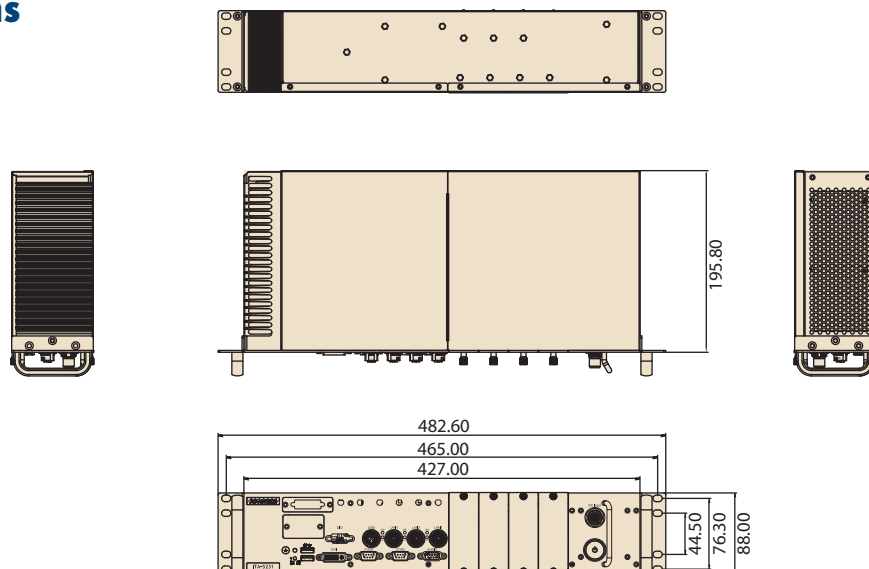
- H-series, 6th generation Intel® Core™ i3/i5/i7 platform with QM170
- Fanless computer for railway vehicle applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70 °C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2/ EN 50121-4 EMC test standard
- Ruggedized connectors (M12) used for communication and power ports
- Supports easy-swap storage module and I/O module

Specifications

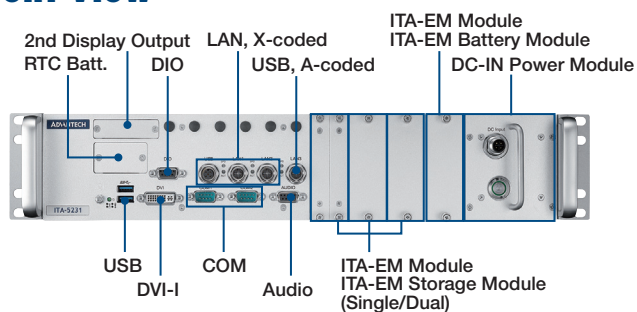
System Chipset	CPU	Intel® Core™ i7-6822EQ	i5-6442EQ	Celeron® G3902E
	Base Frequency/Turbo Boost	2.0/2.8 GHz	1.9/2.7GHz	1.6GHz/NA
	L3 Cache	8M	6M	2M
	Cores/Threads	4C/8T	4C/4T	2C/2T
	Chipset	QM170		
	BIOS	AMI SPI 128Mb		
Memory	Technology	8GB on board memory, DDR4 2133MHz		
	SODIMM slot	1		
	Max. Capacity	Up to 16GB		
Graphics	Chipset	Intel® HD Graphics 530, Celeron with Intel® HD Graphics 510		
	VRAM	Shared with system memory up to 512MB		
	Display	DVI-I: 1920x1200 @ 60Hz		
I/O	USB	2 x USB3.0 with Type A 1 x USB2.0 with M12 A-coded(F) 4-pin		
	Serial Port	2 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control		
	DIO	1 x DB9, 4-bit DI/ 4-bit DO with 2KV Isolation		
	Main Display	1 x DVI-I (Optional to DVI-D+VGA via Y cable)		
	Audio	1 x DB9, 1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in		
Ethernet	Controller	Intel i210-IT /i219LM (Industrial)		
	Interface	10/100/1000 Mbps		
	Connector	3 x M12 X-coded(F), LAN1 with i219LM and LAN2/LAN3 with i210-IT		
Storage	HDD/SSD easy-swap module	1 x ITA-EM-ST51-00A1E, supports 2 x 2.5" SSD (Default setting) Max to 4 x 2.5" SSD (7mm/9.5mm)		
	mSATA	1 x mSATA slot on board		
Others	Mini PCIe	3 x Mini PCIe Socket (Full size)		
	SIM card	2 x SIM slot		
LED & Button	LED	1 x power, 1 x storage, 1 x alert, 1 x BATT		
	Button	1 x power on/off switch 1 x reset button		
Power	Input Voltage	DC 24V input compliant with EN50155 class S2/C2 (optional DC 48/72/110V input)		
	Connector	1 x M12 S-coded(M) 4-pin		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1~255 sec/min		
Environment	Temperature	Operating (with Industrial/Wide-temperature SSD/mSATA) -40 ~ 70 °C		Non-operating -40 ~ 85 °C
	Humidity	5% ~ 95% @ 40 °C (Non-condensing)		
Mechanical	Dimension (W x H x D)	427 x 88 x 195.8 mm (16.81" x 3.46" x 7.71")/482.6 x 88 x 221.3 mm (19" x 3.46" x 8.71") with mounting kits		
	Install	Rack-mounting		
Certification	EMC	CE/FCC Class A, CCC		
	Safety	UL, CB, CCC		
EN 50155 Compliance	Ambient Temperature	EN 50155 TX (-40 ~ 70 °C)		
	Shock and Vibration	IEC 61373 body mount class B		
	Interruptions of Voltage Supply	Class S2		
	Supply Change Over	Class C2		
	EMC	EN 50121-4		

Dimensions

Unit: mm



Front View



Ordering Information

Voltage (M12-S-Male)	Part Number	Processor	Ethernet (M12-X-Female)	USB2.0 (M12-A-Female)	USB3.0 (Type A)	mini-PCIe	2.5" SSD	mSATA slot	COM	DIO	Display
24V _{DC}	ITA-5231-L7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231-L5A1E	i5-6442EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231-L0A1E	G3902E	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
48V _{DC}	ITA-5231-M7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
	ITA-5231-S7A1E	i7-6822EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I
72/110V _{DC}	ITA-5231-S5A1E	i5-6442EQ	3	1	2	3	Up to 4	1	2(Default)	4DI/4DO	DVI-I

ITA-5231 Series supports various I/O expansion. For more specifications, please contact your distributor or sales representative.

Optional List

Part Number	Description
ITA-EM-SR51-00A1E	Easy-swap module, 4 x RS232/422/485 with 2KV Isolation
ITA-EM-CN51-00A1E	Easy-swap module, 2 x CAN ports with 2KV Isolation
ITA-EM-PE51-00A1E ^{Note1}	2 PoE: Each port max to 7.5W @ 52V _{DC} 1 PoE: Up to 15.4W @ 52V _{DC}
ITA-EM-ST51-00A1E	Easy-swap storage tray, support 2 x 2.5" SSD (7mm/9.5mm)
ITA-EM-ST51-10A1E	Easy-swap storage tray, support 1 x 2.5" SSD (7mm/9.5mm/15mm)

P/N	Description
1700025295-31	USB cable: M12 A-code-> USB Type A,10cm
1700026432-21	LAN cable: M12 x-code-> RJ45,10cm
1700025857-21	Power cable: M12 S-code-> 2pin Terminal Block,10cm
1700004713	Y cable: DVI 29P(M) -> DVI 29P(F)+D-SUB 15P(F), 18cm

Note1: Only supports EN 50155 T2 class: -40 ~ 55 °C

Note1: Only supports EN 50155 T2 class: -40 ~ 55 °C

ITA-5831

Intel® 6th Generation Core™ i Processor Fanless System; EN 50155 Compliant for Railway Applications



Features

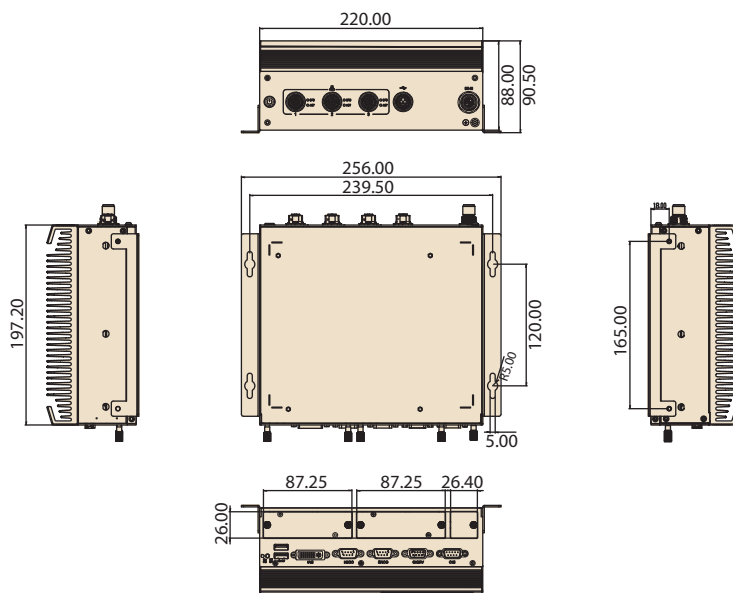
- Intel® Core™ i7-6822EQ platform with QM170
- Fanless computer for railway vehicle applications, fully compliant with EN 50155
- Satisfies temp. standard: EN 50155 TX (-40 ~ 70 °C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2/ EN 50121-4 EMC test standard
- Ruggedized connectors (M12) used for communication and power ports
- Supports easy-swap storage module and I/O module

Specifications

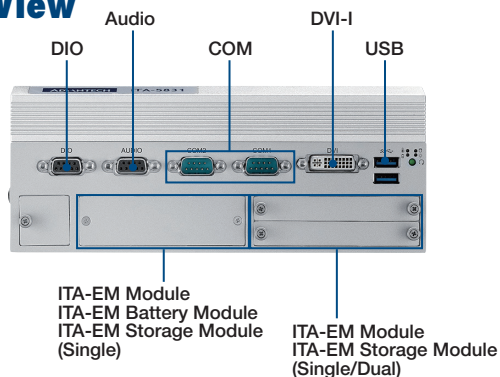
System Chipset	CPU	Intel® Core™ i7-6822EQ	i5-6442EQ	Celeron G3902E
	Base frequency/Turbo Boost	2.0/2.8 GHz	1.9/2.7GHz	1.6 GHz/ NA
	L3 Cache	8M	6M	2M
	Cores/Threads	4C/8T	4C/4T	2C/2T
	Chipset	QM170		
Memory	BIOS	AMI SPI 16M byte		
	Technology	8GB on board memory, DDR4 2133MHz		
	SODIMM slot	1		
Graphics	Max. Capacity	Up to 16G		
	Chipset	Intel Integrated Graphics GT2, Celeron with GT1		
	VRAM	Shared with system memory to 512MB (Default setting)		
	Display	DVI-I: 1920 x 1200 @ 60Hz		
I/O	USB	2 x USB3.0 with Type A 1 x USB2.0 with M12 A-coded(F) 4-pin		
	Serial Port	2 x DB9, RS-232/422/485 with 2KV Isolation, supports auto-flow control		
	DIO	1 x DB9, 4-bit DI/ 4-bit DO with 2KV Isolation		
	Display	1 x DVI-I (Optional to DVI-D+VGA via Y cable)		
	Audio	1 x DB9, 1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in		
Ethernet	Controller	Intel i210-IT (Industrial)		
	Interface	10/100/1000 Mbps		
	Connector	Up to 3 x M12 X-coded(F)		
Storage	HDD/SSD easy-swap module	1 x ITA-EM-ST61-00A1E, supports 2 x 7mm/2.5" SSD (Default) Max to 3 x 2.5" SSD, 2 of 7mm SSD and 1 of 7mm/9.5mm SSD		
	mSATA	1 x mSATA slot on board		
Others	Mini PCIe	3 x Mini PCIe Socket (Full size)		
	SIM card	2 x SIM slot		
LED & Button	LED	1 x power, 1 x storage, 1 x alert, 1 x BATT		
	Button	1 x power on/off switch 1 x reset button		
Power	Input Voltage	DC 24V input compliant with EN50155 class S2/C1(Optional DC 48/72/110V input)		
	Connector	1 x M12 S-coded(M) 4-pin		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1~255 sec/min		
Environment	Temperature	Operating (with Industrial SSD/CF) -40 ~ 70 °C		Non-operating -40 ~ 85 °C
	Humidity	5% ~ 95% @ 40 °C (Non-Condensing)		
Mechanical	Dimension (W x H x D)	220 x 88 x 198.8 mm (8.65" x 3.46" x 7.83")/256 x 92 x 198.8 mm (10.08" x 3.62" x 7.83") with mounting kits		
	Install	Wall-mount by mounting bracket		
	Ingress Protection	IP40 rating, IP50 with I/O caps		
Certification	EMC	CE/FCC Class A, CCC		
	Safety	UL, CB, CCC		
EN 50155 Compliance	Ambient Temperature	EN 50155 TX (-40 ~ 70 °C)		
	Shock and Vibration	IEC 61373 body mount class B		
	Interruptions of Voltage Supply	Class S2: 10 ms interruptions		
	Supply Change Over	Class C1: at 0,6 Un during 100 ms without interruptions		
	EMC	EN 50121-3-2/EN 50121-4		

Dimensions

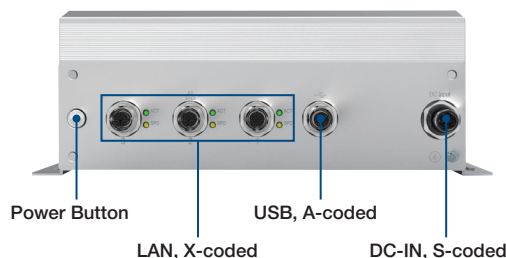
Unit: mm



Front View



Rear View



Ordering Information

Voltage (M12-S-Male)	Part Number	Processor	Ethernet (M12-X-Female)	USB2.0 (M12-A-Female)	USB3.0 (Type A)	mini-PCIe	2.5" SSD	mSATA slot	COM	Digital I/O	Display
24V _{DC}	ITA-5831-L7A1E	i7-6822EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-L5A1E	i5-6442EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-L0A1E	G3902E	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
48V _{DC}	ITA-5831-M7A1E	i7-6822EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-M5A1E	i5-6442EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-H7A1E	i7-6822EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
72V _{DC}	ITA-5831-H5A1E	i5-6442EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-H0A1E	G3902E	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-S7A1E	i7-6822EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
110V _{DC}	ITA-5831-S5A1E	i5-6442EQ	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I
	ITA-5831-S0A1E	G3902E	3	1	2	3	Up to 3	1	2 (Default)	4DI/4DO	DVI-I

ITA-5831 Series supports various I/O expansion. For more specifications, please contact your distributor or sales representative.

Optional List

Part Number	Description
ITA-EM-SR61-00A1E	Easy-swap module, 4 x RS232/422/485 with 2KV Isolation
ITA-EM-CN61-00A1E	Easy-swap module, 2 x CAN ports with 2KV Isolation
ITA-EM-PE61-00A1E ^{Note1}	2 PoE: Each port max to 7.5W @ 52V _{DC} 1 PoE: Up to 15.4W @ 52V _{DC}
ITA-EM-ST61-00A1E	Dual Easy-swap storage tray, support 2 x 2.5" SSD (7mm)
ITA-EM-ST61-10A1E	Single Easy-swap storage tray, support 1 x 2.5" SSD (7mm/9.5mm)

Part Number	Description
1700025295-31	USB cable: M12 A-code-> USB Type A,10cm
1700026432-21	LAN cable: M12 x-code-> RJ45,10cm
1700025857-21	Power cable: M12 S-code-> 2pin Terminal Block,10cm
1700004713	Y cable: DVI 29P(M) -> DVI 29P(F)+D-SUB 15P(F), 18cm