



Features

- 8th/9th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processors
- Intel® Q370 Express Chipset
- Intel® UHD Graphics 630/610
- Memory Max. Up to 64GB DDR4 2666
- mPCIe, M.2 Key-E, M.2 Key-B Expansion Slots
- 40 ~ 70°C Operating Temperature
- 9~36Vdc DC Input, with Vehicle Power Management
- Support RAID 0/1/5/10, Firmware TPM 2.0, iATM 12.0
- CE, FCC, IP50, E Mark, ISO7637-2 Certified



E13 Mark



ISO 7637-2



MIL-STD
810G/H



Wide Temp.
-40~70°C



Wide Voltage
Input
9~36Vdc

Specifications

System Information

Processor	Intel® Core™ i7-8700T Processor (12M Cache, up to 4.00 GHz) Intel® Core™ i5-8500T Processor (9M Cache, up to 3.50 GHz) Intel® Core™ i3-8100T Processor (6M Cache, 3.10 GHz) Intel® Pentium® Gold G5400T Processor (4M Cache, 3.10 GHz) Intel® Celeron® G4900T Processor (2M Cache, 2.90 GHz) Intel® Core™ i7-9700TE Processor (12M Cache, up to 3.80 GHz) Intel® Core™ i5-9500TE Processor (9M Cache, up to 3.60 GHz) Intel® Core™ i3-9100TE Processor (6M Cache, up to 3.20 GHz)
Platform Controller Hub	Intel® Q370 Express Chipset
System Memory	2 x 260-pin DDR4 SODIMM 2400/2666MHz up to 64 GB
Watchdog Timer	H/W Reset, 1sec. ~ 65535min.
H/W Status Monitor	Monitoring CPU & System Temperature and Voltage
RAID	Support RAID 0/1/5/10
TPM	TPM 2.0 (Firmware)
iAMT	iATM 12.0
SBC	EBM-CFSV

Expansion

M.2	1 x M.2 Key-E 2230 for Wi-Fi & BT Module 2 x M.2 Key-B 2242/3042/2280 w/ push-push SIM slot for SSD/ LTE/ I/O Modules
mPCIe	1 x Full Size Mini PCIe (PCIe + USB w/ push-push SIM Slot)
IET	1 x Avalue 80-Pin IET Interface (4 x Gen.3 PCIe1, 3 x USB2.0, 1 x LPC, 1 x Line-Out (R/L), 1 x SMBus)
Expansion	1 x CANBus module Interface (UART), supports ATBS Module (Factory Option)

Storage

M.2	2 x M.2 Key-B SSD (SATA III, Max. up to 2280)
2.5 Drive Bay	2 x 2.5" Drive Bay (SATA III, Max. up to 12.5mm Height Storage)

Front I/O

USB	2 x USB 3.2 Gen. 1
Power Button	1 x Push Button for Power on/off w/ LED
Reset Button	1 x Push Button for Reset in hiding
LED Indicator	1 x Power LED (Blue), 1 x Storage LED (Yellow) 1 x WLAN LED (Green), 1 x WWAN LED (Green)

Audio	1 x Mic-In, 1 x Line-Out
SIM Slot	3 x SIM Card Slot (External Accessible w/ Dust Protection Cover)
Digital I/O	1 x 8bit GPIO, w/1.5KV isolation

Rear I/O

USB	4 x USB 3.2 Gen.1
COM Port	2 x RS232/422/485, (Jumper + DIP switch), with +5V and +12V support on Pin-9 1 x RS-232 (COM3), with +5V and +12V support on Pin-9
LAN Port	2 x RJ-45
CAN Bus	CANbus modules supports OBDII, SAE J1939/J1708 (Factory Option)

Audio	1 x Mic-In, 1 x Line-Out
DP	1 x DP
HDMI	2 x HDMI
LVDS	1 x DB26 LVDS interface with 12V and USB2.0
Antenna	5 x Antenna Mounting Hole
AC/DC Input	3-Pin Terminal Block
DC Output	2-Pin Terminal Block

GPS

Chipset	Onboard u-blox NEO-M8N module supports GPS/ Gloness/ QZSS/ Galileo/ Beidou
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Display

Graphic Chipset	Intel® UHD Graphics 630 (i7-8700T, i5-8500T, i3-8100T) Intel® UHD Graphics 610 (Pentium G5400T, Celeron G4900T)
Resolution	DP: Max. resolution 4096x2160 @ 60Hz HDMI: Max. resolution 4096x2160 @ 30Hz LVDS: Max. resolution 1920x1200 @ 60Hz

Audio

Audio Codec	Realtek ALC888S supports 2-CH
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Ethernet

LAN Chipset	1 x Intel® I211AT, 1 x Intel® I219LM
Specification	10/100/1000 Base-Tx GbE compatible

Power Requirement

Voltage Input Spec.	Typical 12/24Vdc (+9~ 36Vdc)
Voltage Input Connector	3-Pin Terminal Block
DC Output Spec.	12Vdc/4A
DC Output Connector	2-Pin Terminal Block
ACPI	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant
Power Mode	Vehicle Power Mode (Default Setting) Industrial PC Power Mode supports AT/ATX

Software Support

OS	Win10, Linux
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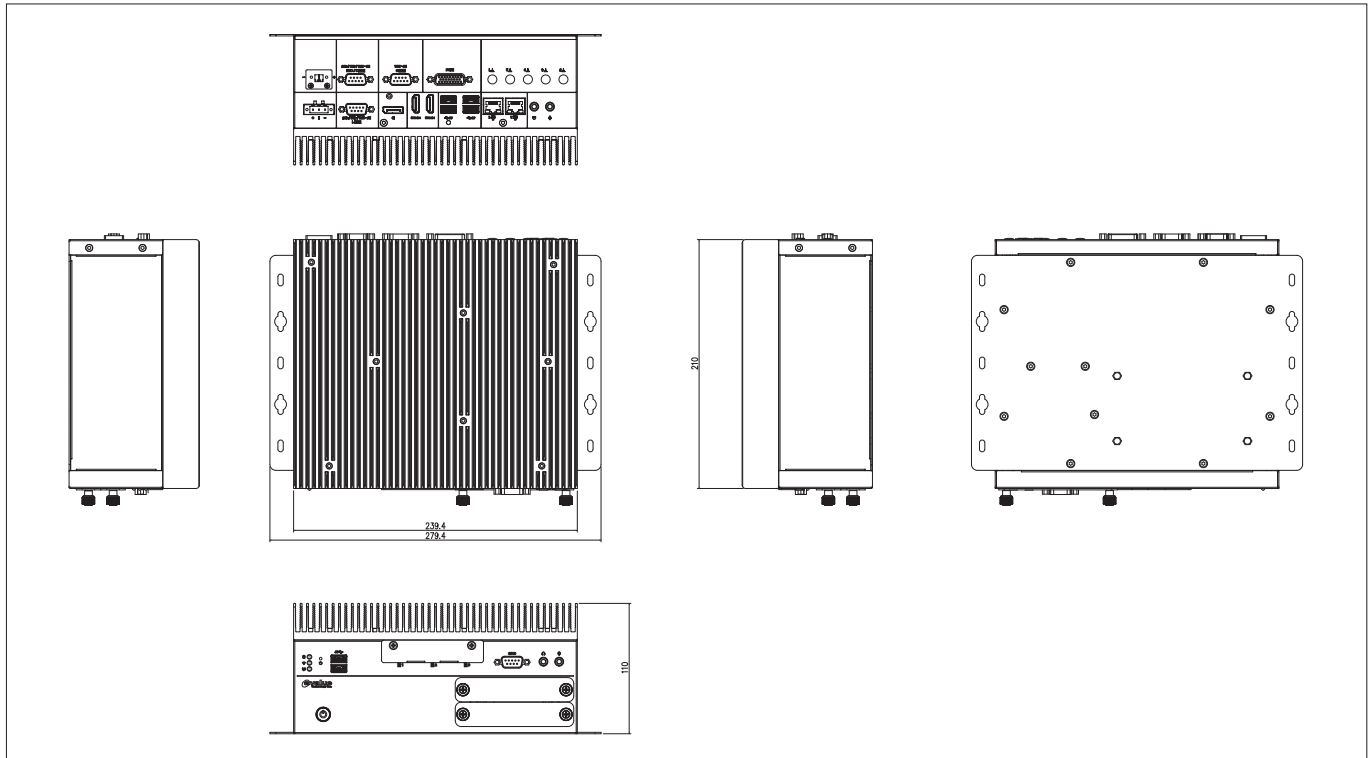
Certification

Certification Information	CE, FCC Class A, E13 Mark, ISO 7637-2, IP50
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Mechanical & Environmental

Operating Temp.	-40°C ~ 70°C (-40°F ~ 158°F) with 0.5m/s air flow, extended temperature peripherals
Storage Temp.	-30°C ~ 70°C (-22°F ~ 158°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Dimension (W x L x H)	239.4mm x 210mm x 110 mm (w/o wall mount)
Weight	5.4KG (w/packing), 4.5KG (System)
Vibration Test	MIL-STD-810G, Method 514.6, Category 4
Shock Test	MIL-STD-810H, Method 516.8, Procedure I, functional shock=20G
Mounting Kit	Wall Mount kit (Standard)

Mechanical Drawing



Ordering Information

P/N	Processor	Chipset	Memory	Storage	Adapter/ PSU	Mounting Kit	Temp.
VMS-CFS-87-B1-1R	Intel® Core™ i7-8700T Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-85-B1-1R	Intel® Core™ i5-8500T Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-81-B1-1R	Intel® Core™ i3-8100T Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-54-B1-1R	Intel® Pentium® Gold G5400T Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-49-B1-1R	Intel® Celeron® G4900T Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-97-B1-1R	Intel® Core™ i7-9700TE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-95-B1-1R	Intel® Core™ i5-9500TE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C
VMS-CFS-91-B1-1R	Intel® Core™ i3-9100TE Processor	N/A	8GB DDR4 (Up to 64G Optional)	(Optional)	120W Adapter (Optional)	Wall Mount	-40°C ~ 70°C

Packing List

Item	Quantity
VMS-CFS Intel® 8th/9th Coffee Lake Rugged Fanless Vehicle Telematics System	1
DP to VGA Converter	1
Wire tie for HDMI	2
Screw driver for chassis	1
Screw Kits for Peripheral	1
Dust Cover Kits	1

Optional Items

Item	P/N
AC/DC adapter 12V/10A 90 Screw Type	ACC-ADP-120N-07R
Terminal block to lockable DC Jack cable	E170P040031R
Power Cord 3P (F)-3P (M) 183cm, USA type	E1702031833R
Power Cord SL-6+SL-3 183cm, EU type	E1702031000R
Power Cord 3P (F)-3P (M) 183cm, Japan w/PSE type	E1702031834R
Power Cord QP-026+SL-3 183cm, UK type	E170P060380R
Power Cord 3P (F)-3P (M) 183cm, Australia type	E1702031831R

I/O Overview

