

# VMC 4020

12.1" Rugged Vehicle Mount Computer  
with Intel Atom® x7-E3950 Processor, Touch Screen and IP65



VMC 4020-4A0



VMC 4020-4A1

## Main Features

- 12.1" XGA TFT LCD monitor with 5-wire resistive touch
- Built-in Intel Atom® x7-E3950 processor, 1.6GHz
- Aluminum die-casting and fanless design
- Analog camera x 3 (CVBS)
- Ether of completer IP65 housing, or IP65 housing without I/O part
- Automatic/manual brightness control
- Isolated CANBus 2.0 x 2
- 10/100/1000Mhz for independent ethernet x 2
- On screen F1 ~ F10 programmable function keys
- Military standard for vibration and shock
- PoE 802.3af/at (optional)
- iButton and RFID for ID identification
- Micro SIM x 2
- Wide range DC input from 9V~60V DC in
- Sunlight readable capability: 1,200nits LCD brightness
- One expansion port reserved
- Operating system: Windows and Linux
- CE/FCC/EMark

## Product Overview

VMC 4020, 12.1-inch all in one robust vehicle mount computer, is designed for the warehouses, port, logistic and material handling markets. It implements the latest Intel Atom® x7-E3950 processor (codename Apollo Lake) on both of Windows and Linux platforms, and offers optional to complete IP or non-completer IP solution. VMC4020 is able to support analog camera x 3 for security purpose and takes less than 1 second to see video content. PoE 802.3af/at for IP camera is another choice. LCD panel: 1,200nits typ. guarantees to reach sunlight-readable. Wide-range power input (9V~60V) can let VMC4020 to be capable of setting up in various facilities and vehicles. The design of mini-PCIe slots x 4 and one expansion slot can solve the potential request from the market when needed.

## Specifications

### LCD Panel

- 12.1-inch TFT LCD panel with LED backlight
- 1024 x 768 pixels (XGA)
- Brightness: 1200 cd/m<sup>2</sup> (typical)
- Viewing angle: 170° (H):170°(V)
- Contrast ratio: 750:1 (typical)

### Touch Screen Sensor

- 5-wire resistant touch
- Anti-glare coating surface
- Transmission rate: 81 ± 3%

### CPU & Chipset

- Intel Atom® x7-E3950 processor dual core 1.6GHz memory
- One 204-pin DDR3L 1600MHz SO-DIMM slot (default: 4GB)

### Security

- 1 x TPM 2.0 as default

### GNSS and Onboard Sensor

- 1 x U-blox NEO-M8N GNSS module for GPS/Gloness/QZSS/Galileo/Beidou as default
- G Sensor (3-axis, 10-bit resolution)

### Expandable Storage

- 1 x CFast
- 1 x 2.5" SATA SSD bay

### Expansion

- 3 x Full-size Mini PCIe socket (PCIe + USB)
- 1 x Full-size Mini PCIe socket (USB)
- 1 x CFast
- 2x Micro SIM slot

### I/O Interface-Front

- LCD back light on/off
- Volume control (+/-)
- Brightness control (+/-)

- Light sensor
- 4 x LED indicator (power, WLAN, shift, storage)
- F1 ~ F10 programmable function
- 2 x Built-in 2W speaker

### I/O Interface-Lateral

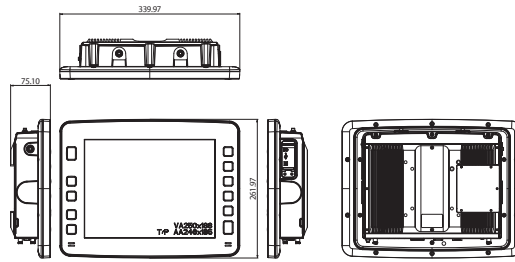
- Right Side:
  - 1 x CFast card slot
  - 1 x System reset button
  - 1 x USB 2.0 host Type-A connector
- Left Side:
  - 1 x Antenna for WWAN

### I/O Interface-Bottom (VMC 4020-4A1, IP65)

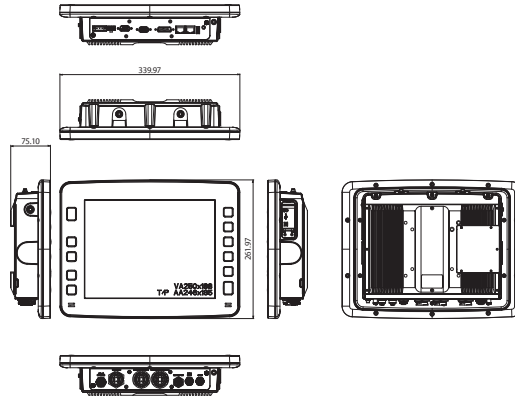
- 1 x M12 (22 pins)
  - 1 x 10/100/1000, LAN1 (wake up on LAN)
  - 1 x RS-232 (Tx/Rx)/RS422/RS485 (RI, 5V/0.5A, 12V/0.5A)
  - 1 x DR (odometer + speed)
  - 2 x GPI
    - Source: 9V~60V-in (default)
    - Sink: external 0V~60VDC pull-high selected by software settings
    - Input High "1" Voltage: 3.3~60 VDC
    - Input Low "0" Voltage: 0~2 VDC
  - 2 x GPO
    - Source: 9V~60V-in (default)
    - 12V/6mA, 24V/12mA, 36V/18mA, 48V/24mA, 60V/30mA
    - Sink: external max. 0.5A pull high
- 1 x M12 (21-pin)
  - 1 x Mic in
  - 1 x Line out
  - 1 x Full RS-232/422/485 (RI, 5V/0.5A, 12V/0.5A)
  - 2 x Isolated CANBus 2.0B
    - When installing CAN06, CAN2 becomes J1939/ISO 15765-4
    - When installing CAN05, CAN2 becomes J1708
  - 1 x iButton

## Dimension Drawing

VMC 4020-4A0



VMC 4020-4A1



- 1 x M12 (5-pin)
  - 9V~60V DC in
- 1 x M12 (8-pin)
  - Either of DC output or RFID
    - 1 x DC output (12V/2A)
    - 1 x RFID (Tx/Rx, 12V/2A)
- 1 x M12 (8-pin)
  - 1 x 10/100/1000, LAN2 (optional for 802.3af/at)
- 1 x M12 (8-pin)
  - 2 x USB Type-A
- 1 x M12 (18-pin)
  - Expansion port
- 1 x GPS antenna SMA connector (on housing)

### I/O Interface-Bottom (VMC 4020-4A0, Front IP65)

- 1 x Mic in and Line out
- 2 x RJ45 10/100/1000
  - LAN1, wake up on LAN
  - LAN2, optional for 802.3at
- 1 x USB Type-A
- 1 x DB9 full RS-232/422/485 (RI, 5V/0.5A, 12V/0.5A)
- 1 x 26 pins connector:
  - 1 x Full RS-232/422/485 (RI, 5V/0.5A, 12V/0.5A)
  - 1 x RFID (Tx/Rx)
  - 2 x Isolated CAN 2.0B
  - 1 x J1939/ISO 15765-4 or J1708 (CAN06 or CAN05)
    - When installing CAN06, CAN2 becomes J1939/ISO 15765-4
    - When installing CAN05, CAN2 becomes J1708
  - 1 x DR (odometer + speed)
  - 1 x iButton
  - 1 x GPI
    - Source: 9V~60V-in (default)
    - Sink: external 0V~60DC pull-high selected by software settings
    - Input High "1" Voltage: 3.3~60 VDC
    - Input Low "0" Voltage: 0~2 VDC
- 2 x GPO
  - Source: 9V ~ 60V-in (default)
  - 12V/6mA, 24V/12mA, 36V/18mA, 48V/24mA, 60V/30mA
  - Sink: external external max. 0.5A pull high
- 1 x DB15 for expansion port
- 1 x 3-pin terminal block
  - 9V~60V DC in

### I/O Interface-Top

- 2 x Antenna for Wi-Fi

### Mechanical

- Cooling system: fanless
- Enclosure: aluminum die castig
- Mounting: VESA 75
- Ingress protection: complete IP65, or IP65 without covering the bottom
- Dimension: 339.97mm(W) x 261.97mm(H) x 75.10mm(D)
- Weight: 5kg

### Power Management

- 9V~60V DC in
- Reverse protection/over voltage protection/under voltage protection
- Ignition on/off control & programmable on/off delay timing
- Wake up by LAN1, SMS, RTC and ignition

### Environment

- Operating temperatures: Ambient with air -30°C to 60°C
- Storage temperatures: -30°C to 70°C
- Relative humidity: 10% to 90% (non-condensing)
- Vibration
  - Operating: MIL-STD-810G, 514.6 Procedure 1, Category 4
  - Storage: MIL-STD-810G, 514.6 Procedure 1, Category 24
- Shock
  - Operating: MIL-STD-810G, Method 516.6, Procedure I, trucks and semi-trailers = 40g
  - Crash hazard: MIL-STD-810G, Method 516.6, Procedure V, ground equipment = 75g

### Operating System

- Windows 10, Linux

### Standards/Certifications

- CE/FCC class B/E13

## Ordering Information

- **VMC 4020-4A0 (P/N: 10VC0402000X0)**  
12.1" rugged vehicle mount computer with Intel Atom® x7-E3950, touch screen and front IP65
- **VMC 4020-4A1 (P/N: 10VC0402002X0)**  
12.1" rugged vehicle mount computer with Intel Atom® x7-E3950, touch screen and complete IP65
- **(Optional) VMC 4020 battery kit (P/N: 88VC0302000X0)**  
Back-up battery for approx. 30 minutes of operation under power consumption 20W