# NA OBU-C320 Vehicle Terminal Product Specification

# 1. Product introduction

NA OBU-C320 is an intelligent vehicle terminal product independently developed by iSmartWays for the North American market. It is mainly used in intelligent network connection, intelligent transportation and other fields. The product can realize PC5 direct communication between vehicle and vehicle/vehicle and road and communication based on North American 4G cellular network, which can meet multi-scenario communication requirements such as intelligent networked vehicles and intelligent transportation, and has vehicle-road coordination, intelligent computing, and remote interaction. Management and other functions. After the vehicle is equipped with this device, it can interact with other vehicles, pedestrians, and roadside equipment to provide drivers with real-time traffic information and early warning information, thereby ensuring active driving safety and providing basic software and hardware support for improving traffic efficiency and strengthening traffic safety.

# 2. Product features

- Meet the frequency band requirements of 4G operators in North America
- Meets 3GPP R14 standard LTE-V communication, supports PC5 (mode 4) communication
- Support centimeter-level high-precision positioning, and provide lane-level positioning services to meet the positioning accuracy requirements in different environments
- Built-in HSM module, meets North American FIPS-140-2 Level 3 certification requirements
- Software security meets IEEE 1609.2 protocol requirements
- Support Ethernet, USB3.0, 2 high-speed CAN bus communication interfaces
- Support RS232 external equipment expansion, such as high-precision GPS equipment
- Support WIFI/Bluetooth fast docking of various HMIs, car central control screen/HUD/ streaming media rearview mirror
- Supports HDMI communication, and can be connected to HUD and other vehicle displays for scene display
- Built-in emergency battery, when the vehicle unexpectedly loses power, it can still transmit real-time vehicle information
- IP66 degree of protection, high reliability of waterproof and dustproof
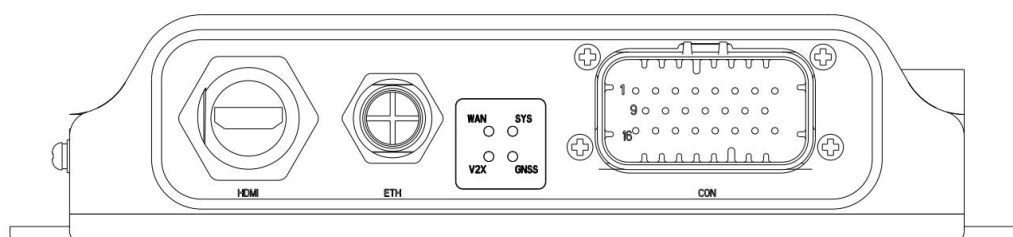
# 3. Product function

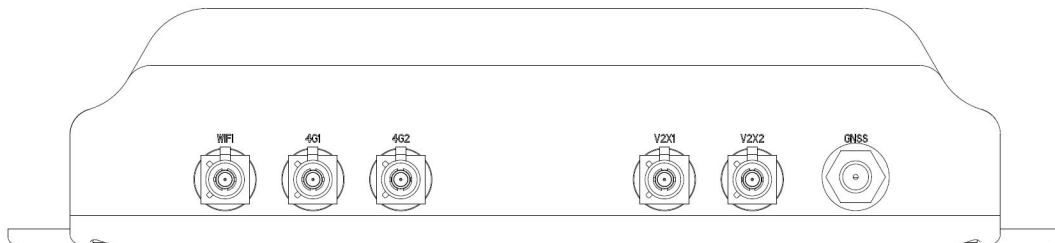| Function | Description |
|---|---|
| Assistance Drive | FCW(Forward Collision Warning), EBW(Emergency Brake Warning), ICW(Intersection Collision Warning)…… |
| Vehicle-Road cooperation | GLOSA(Green Light Optimal Speed Advisory), EVW(Emergency Vehicle Warning), IVS, EVP…… |
| Vehicle status query | Master the vehicle status information in real time, and timely upload to the cloud server |
| Remote vehicle tracking | Query the vehicle running information within a period of time through the cloud server |

# 4. Specification parameters

| System parameters | |
|---|---|
| OS | Linux 5.10 |
| CPU | Cortex-A35 Quad-Core 1.2GHz |
| RAM | LPDDR4 1200MHz 2GB |
| ROM | EMMC 8GB |
| Cellular | WCDMA/FDD-LTE/TDD-LTE |
| V2X | C-V2X PC 5 mode4(3GPP Rel.14) |
| V2X Frequency Range | 5.905 ~ 5.925GHz |
| V2X Work bandwidth | 10MHz or 20MHz |
| V2X Transfer rate | 15.84Mbps(10MHz); 31.7Mbps(20MHz) |
| V2X Max. Tx Power | 23dBm±2dB |
| GNSS | Support Beidou/GPS/GLONASS/Galileo/QZSS, centimeter-level positioning, Maximum date update frequency 30Hz |
| WiFi | 2.4GHz, support 802.11a/b/g/n/ac, SISO |
| BT* | BT 4.2 +EDR |
| CAN | CAN 2.0B*2 |

| | |
|---|---|
| RS232 | RS232*1，supports external access to centimeter-level high-precision positioning sensors |
| Debug serial port | UART*1 |
| Ethernet | 1000M*1 |
| SIM Card | Micro-SIM |
| HSM | Built-in HSM module, meeting FIPS-140-2 Level3 requirements |
| HDMI | HDMI*1，Support maximum 1080p/60Hz resolution video output |
| Built-in battery | Satisfied that in the case of an accidental power failure of the vehicle battery, it can still continue for 15 minutes normally, and supports the built-in battery charge and discharge management function |
| **Electrical Environmental Characteristics** | |
| Operating temperature | -40℃ ~ +85℃ |
| Storage temperature | -40℃ ~ +85℃ |
| Operating humidity | 10% ～ 95%( non-condensing） |
| Electrostatic discharge | IEC61000-4-2(ESD)±8kV(air),±4kV(contact) |
| Power supply | 12V，1A |
| **Physical Characteristics** | |
| Dimension | 180*180*47mm （with mounting holes） |
| Color | Black |
| Shell material | Aluminum Alloy |
| Net weight | 1100g |
| Degree of protection | IP66 |

## 5. Port description

| No. | Port | Description |
|-----|------|-------------|
| 1 | HDMI | HDMI video port |
| 2 | ETH | Ethernet port |
| 3 | WAN | Cellular network status indicator：<br>ON: Working<br>OFF: Abnormal |
| 4 | SYS | System running status indicator：<br>On: The device is powered on<br>Off: The device is powered off or in standby mode<br>Blinking (1Hz): The system starts successfully |
| 5 | V2X | V2X status indicator：<br>ON: Working<br>OFF: Abnormal |
| 6 | GNSS | GNSS status indicator：<br>ON: Acquisition<br>OFF: NON-Acquisition<br>Blinking (1Hz): The antenna is normal but cannot be located |
| 7 | CON | Main interface for power supply and communication |



| No. | Port | Description |
|-----|------|-------------|
| 1 | WIFI | WLAN antenna connector, FAKRA-K |
| 2 | 4G1 | 4G main antenna connector，FAKRA-D |
| 3 | 4G2 | 4G diversity antenna connector ，FAKRA-D |
| 4 | V2X1 | V2X main antenna connector，FAKRA-Z |
| 5 | V2X2 | V2X diversity antenna connector ，FAKRA-Z |
| 6 | GNSS | High precision GNSS antenna connector ，SMA |

# 6. Kit List

| No. | Name | Quantity |
|-----|------|----------|
| 1 | OBU-C320 | 1 |
| 2 | Combined Antenna（4G、V2X、GNSS） | 1 |
| 3 | WiFi Antenna | 1 |
| 4 | Power Cable | 1 |