# ANNA-F GNSS PCIe Mini Card

## Features

- Built-in u-blox M8 GNSS module (GPS, GLONASS, BeiDou, Galileo, QZSS and SBAS)
- Support Dead Reckoning Features: UDR or ADR
- Optionally Support Automotive Dead Reckoning (CAN-to-ADR) Technology (The card needs to be connected to the vehicle CAN bus)
- Optional SKU with Sensors Integrated: 3D Gyroscope, 3D Accelerometer.

## Introduction

ANTZER TECH's ANNA Mini-PCIe card integrates high performing u-blox M8 module that have concurrent reception of up to 3 GNSS (GPS/Galileo together with GLONASS or BeiDou). ANNA series has optional configurations which support Dead Reckoning Technology: UDR (Untethered Dead Reckoning), ADR (Automotive Dead Reckoning) or Antzer Tech patented CAN-to-ADR solution. ANNA Mini-PCIe card provides outstanding positioning accuracy which is the ideal solution for industrial and automotive applications.

## Specifications

| | | |
|---|---|---|
| **Interface** | Form Factor | Full Sized PCI Express Mini Card |
| | Host Interface | USB 2.0 via PCI Express Mini Card Socket<br>*\* Optional SKU with sensors via I²C or USB 2.0 on PCI Express Mini Card Socket* |
| **GNSS** | GNSS Module | u-blox, NEO-M8U, NEO-M8L |
| | Receiver Type | 72-channel u-blox M8 engine<br>Concurrent reception of up to 3 GNSS (GPS, Galileo, GLONASS, BeiDou) |
| | Position Accuracy | 2.0m CEP |
| | Dead Reckoning | UDR / ADR / CAN-to-ADR |
| | Quick Hot Start | Support (Li-Coin Battery is Required) |
| | GNSS Antenna | External, IPEX connector onboard (Default Support Active Antenna)<br>*\* Optional SKU Support Passive Antenna* |
| | Input Connector | Wheel-tick and Direction Inputs for the ADR SKU |
| **CAN/Sensor** | Sensor (Optional SKU) | 3D Gyroscope<br>3D Accelerometer |
| | CAN (Only for CAN-to-ADR SKU) | Support ISO15765-4 On-Board Diagnostic or J1939 Protocol to Get Speed from Vehicle CAN Bus for CAN-to-ADR Application. |
| **Environment** | Operating Temp | -40°C ~ 85°C (without Li-Coin Battery)<br>-20°C ~ 60°C (with Li-Coin Battery) |
| | Vibration Test | Pass 7.69G@ 20~2000Hz, compliant with MIL-STD-810G category 24 |
| | ESD Protection | 8kV Contact, 15kV air |
| | Certification | CE, FCC Class B |
| **Dimension** | L x W x H | 50.9 x 30 x 6.45mm |

# Pin Assignment

| Pin | Function | Pin | Function |
|-----|----------|-----|----------|
| 1 | NC | 2 | +V3.3 |
| 3 | NC | 4 | GND |
| 5 | NC | 6 | NC |
| 7 | NC | 8 | NC |
| 9 | GND | 10 | NC |
| 11 | NC | 12 | NC |
| 13 | NC | 14 | NC |
| 15 | GND | 16 | NC |
| Mechanical Key | | | |
| 17 | NC | 18 | GND |
| 19 | NC | 20 | NC |
| 21 | GND | 22 | NC |
| 23 | NC | 24 | +V3.3 |
| 25 | NC | 26 | GND |
| 27 | GND | 28 | NC |
| 29 | GND | 30 | NC |
| 31 | NC | 32 | NC |
| 33 | NC | 34 | GND |
| 35 | GND | 36 | USB_DM |
| 37 | GND | 38 | USB_DP |
| 39 | +V3.3 | 40 | GND |
| 41 | +V3.3 | 42 | NC |
| 43 | GND | 44 | NC |
| 45 | NC | 46 | NC |
| 47 | NC | 48 | NC |
| 49 | NC | 50 | GND |
| 51 | NC | 52 | +V3.3 |

# Functional Switch

| Pin | Function |
|-----|----------|
| SW #1 | Reserved (Default: OFF) |
| SW #2 | Back-up Battery ON/OFF (Default: ON) |
| SW #3 | CAN bus Tx ON/OFF (Default: ON) |
| SW #4 | CAN bus Terminal Resistor (Default: OFF) |

# Ordering Information

| Form Factor | Sensors [1] | GNSS Feature | | |
|-------------|-------------|------|-----|-----------|
| | | UDR | ADR | CAN-to-ADR |
| Full-sized mPCIe | | ANNA-F00U0 | | |
| | ● | ANNA-F00U1 | ANNA-F00L1 | ANNA-FG0L1 [2] |

[1] The interface of the sensors on the list is I$^2$C on the mPCIe socket. Please contact our sales representative if you need the SKU with USB 2.0 interface for the sensors.

[2] For the SKU with CAN-to-ADR function, the default interface of the sensors would be USB 2.0 on the mPCIe socket.

Authorized Distributor

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