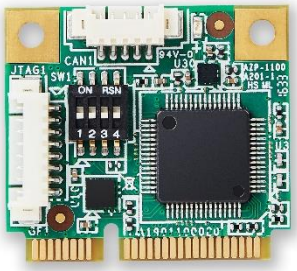
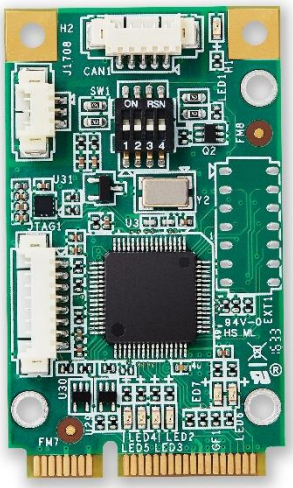
CAN Bus Mini PCI-E Card

FARO-FP/HP Series USER MANUAL

Version 2.0.0

Apr. 8, 2020





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Important User Information

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Antzer Tech CANbus Mini PCI-E Module User Manual

Table of Contents

1. Product Description

1.1. Introduction

Antzer Tech CANbus solution is designed in Mini PCI-E for both full and half form factor. FARO Series CANbus module can optionally support different protocols (CAN 2.0 A/B, OBD II, J1939 & J1708 protocols) for Vehicle diagnostic interface and offers an ideal CANbus solution for the In-vehicle computing system.

1.2. Document History

Version	Date	Author	Description
1.0	6-Jun-16	Jocelyn Yang	First version of FARO user manual
1.1	26-Jul-16	James Chen	1. Update naming rule 2. Update ordering information
1.1.1	03-Aug-16	Jocelyn Yang	Modify naming rule
1.2	21-Oct-16	Jocelyn Yang	1. Update Product Picture 2. specification modify 3. CAN function switch modify
1.3	11-Jan-17	James Chen	1. Replace Section 3.2 content with J1708 connector 2. Add Appendix A
1.3.5	20-Dec-17	Irene Cheng	1.Add Socket CAN and FARO-FS910 in SPEC & ordering information 2.Add Support Linux Socket CAN 3.Pin definition Change (CAN1 → Port 0; CAN2 → Port 1)
1.4.0	15-Jun-18	Haney Huang	1. Removed FARO-FS910 SKU and 3 series product information 2. Updated S/W driver and SDK support list 3. Modified Cables P/N
2.0.0	8-Apr-20	Haney Huang	Modified the document due to the new series FARO-FP/HP released

2. Hardware Specification

Specifications	
Form Factor	Full size or Half Size Mini PCIe
Host Interface	Standard: USB 2.0 via PCI Express Mini Card Socket
Interface Number	CAN (ISO 11898) x 2 Individual Channels J1708 x 1 (FARO-FP900 Only)
Sensor	3D Gyroscope 3D Accelerometer
Protocol	OBD-II, J1939, and J1708
Identifier filtering	Mask and Identifier List Mode
Driver Support	Microsoft Windows 7 / 8 / 8.1 / 10 Linux Ubuntu 14.04 and Later SocketCAN (Source Code)
SDK Support	Microsoft Windows 7 / 8 / 8.1 / 10 Linux Ubuntu 14.04 and Later
Operation Temp.	-40°C ~ 85°C
Vibration Test	Pass 7.69G@ 20~2000Hz, compliant with MIL-STD-810G
ESD Protection	8kV Contact, 15kV air
Dimension **(L x W x H)**	Full Mini PCIE: 50.9 x 30 x 6.56mm Half Mini PCIE: 26.8 x 30 x 6.56mm

3. Connector Overview

4.1 FARO-HP Series

The positions of the CAN connector and Termination Resistor on the FARO-HP series card.

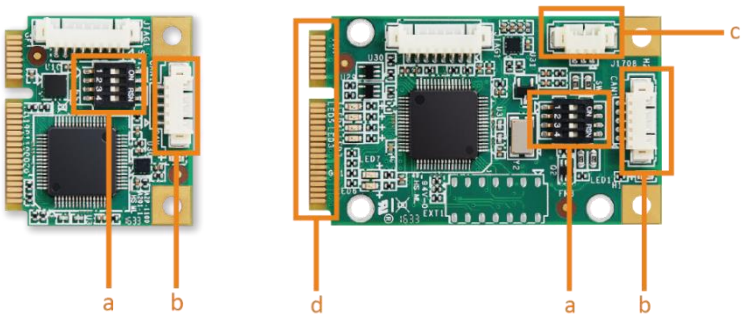
a. CAN Function Switch

b. 2-Channel CAN Connector

4.2 FARO-FP Series

The positions of the CAN Connector, J1708 connector, Extension Connector and Termination Resistor on the FARO-FP series card.

I/O Connectors



a. CAN Function Switch

b. 2-Channel CAN Connector

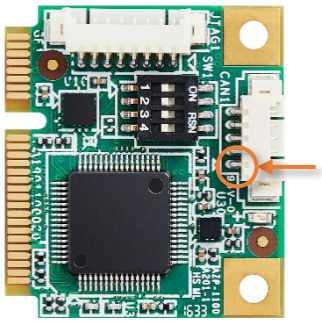
c. J1708 Connector

d. Golden Finger Pin to Mini-PCIe Slot

4. Connectors and Pin Assignment

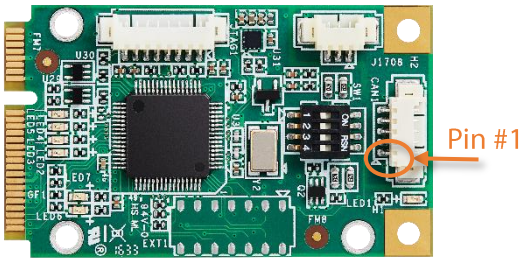
4.1 CANbus Connector

The pin assignment between the D-Sub port and the 5-pin CAN connector[1] on the FARO-HP and FARO-FP cards are as follows:



Pin #5: Port 1 CAN-H
Pin #4: Port 1 CAN-L
Pin #3: GND
Pin #2: Port 0 CAN-H
Pin #1: Port 0 CAN-L

FARO-HP Series



Pin #5: Port 1 CAN-H
Pin #4: Port 1 CAN-L
Pin #3: GND
Pin #2: Port 0 CAN-H
Pin #1: Port 0 CAN-L

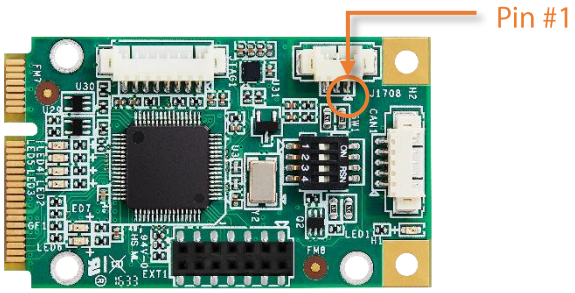
FARO-FP Series

If you need the optional CANbus cable set for the development, please refer to ***Appendix A Optional Cable & Accessory*** section for detail.

1 Connector type: MOLEX PicoBlade™ Wire-to-Wire and Wire-to-Board Housing. The part number of the matching plug: 51021-0500

4.2 J1708 Connector

The pin assignment of the J1708 connector[2] of the FARO-FP Series is as follows:



FARO-FP Series

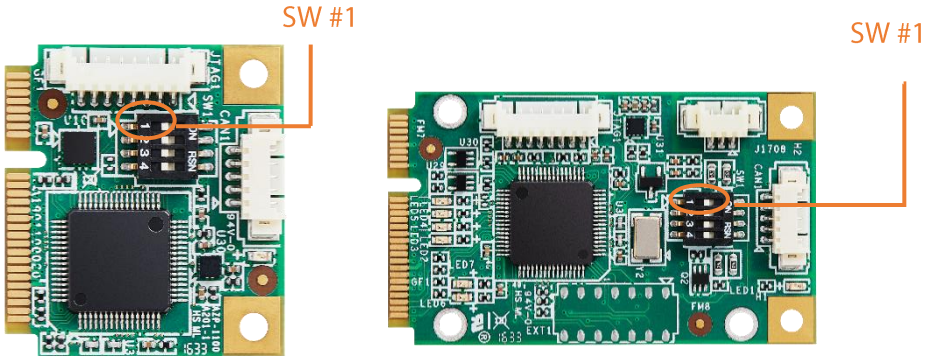
Pin #1:	D-
Pin #2:	GND
Pin #3:	D+

If you need the optional CANbus cable set for the development, please refer to ***Appendix A Optional Cable & Accessory*** section for detail.

2 Connector type: MOLEX PicoBlade™ Wire-to-Wire and Wire-to-Board Housing. The part number of the matching plug: 51021-0400 1.25 Pitch

5. CAN Function Switch

The Termination Resistor Switch enables the user to change the 120-ohm resistor quickly. Not requires the specific cable.



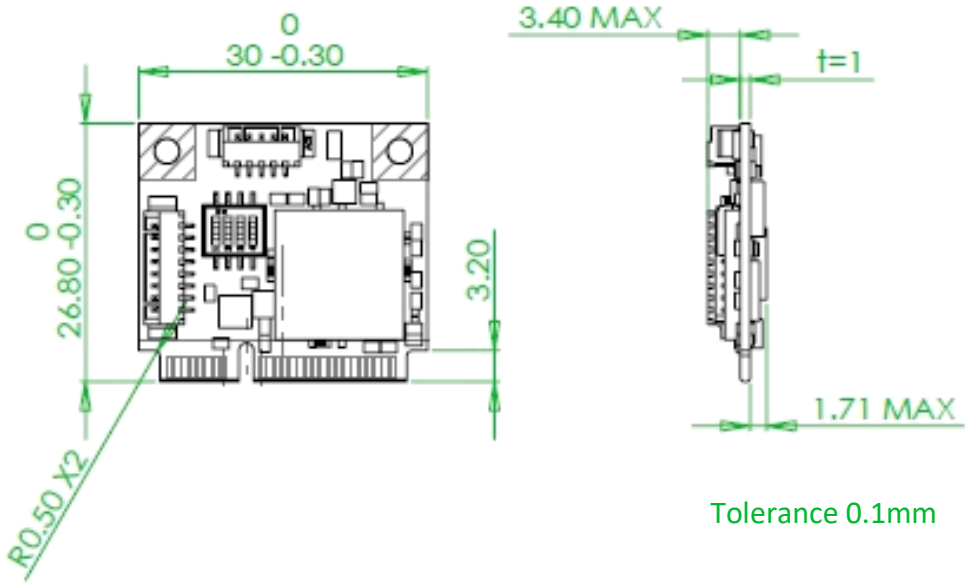
FARO-HP Series

FARO-FP Series

SW #1: CAN Port 1 Terminal Resistor (Default OFF)
SW #2: NC (Default OFF)
SW #3: CAN Port 0 TX On/Off (Default On)
SW #4: CAN Port 0 Terminal Resistor (Default OFF)
ON: Enable / OFF: Disable

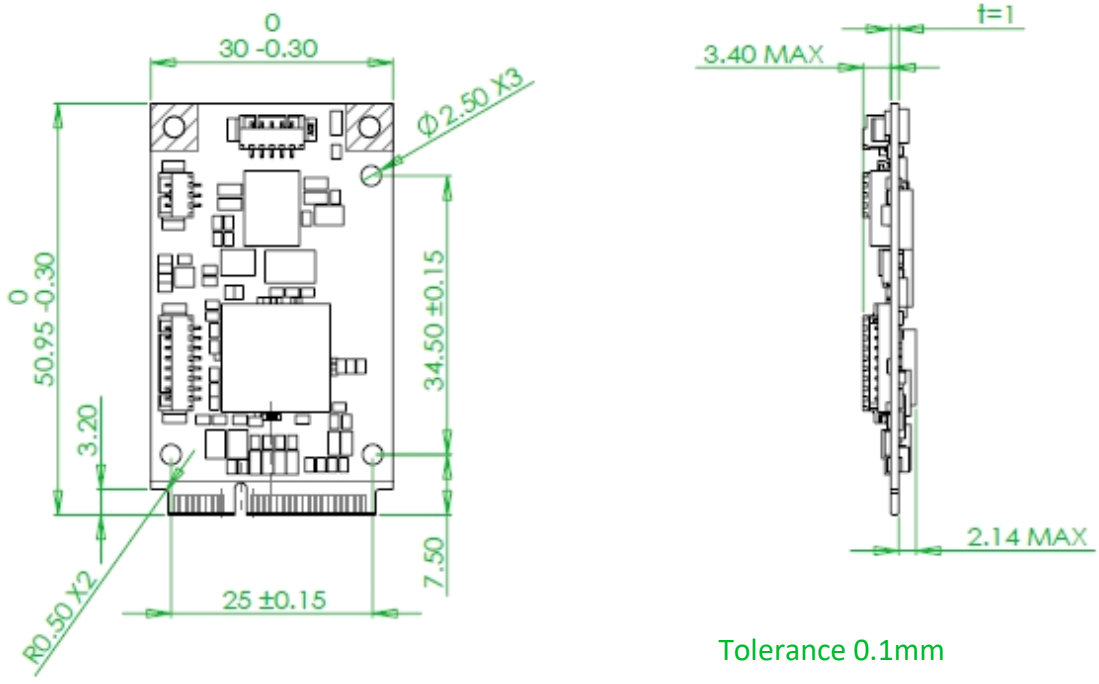
6. Dimension Drawing

7.3 FARO-HP Series



Tolerance 0.1mm

7.4 FARO-FP Series



Tolerance 0.1mm

7. Installation

Risk of ESD damages caused by improper handling!
Use ESD protective measures to avoid equipment damage.

7.1 Driver Installation

For the operation of the FARO CANbus module a driver is needed.

Windows

- Install Windows driver. (see FARO SDK REFERENCE MANUAL)

Linux

- Support by Project. Please contact your Antzer Tech sales windows.

7.2 Hardware Installation

- Make sure driver is installed.
- Turn off the computer.
- Pull power cord.
- Open computer case according to instructions of computer manufacturer.
- Determine corresponding slot.
- Plug PC connector in corresponding slot, without using force.
- Make sure the interface is securely held in computer.
- Close computer case.
- Hardware installation is complete

8. Reliability Specifications

8.1 Environmental

Antzer Tech FARO CANbus Mini PCI-E module environmental specifications follow MIL-STD-810G, as indicated in the following table.

Environment	Specifications
Temperature	Operating: -40°C to 85°C
Vibration	Operating: Random, 7.69(Grms), 20~2000(Hz)

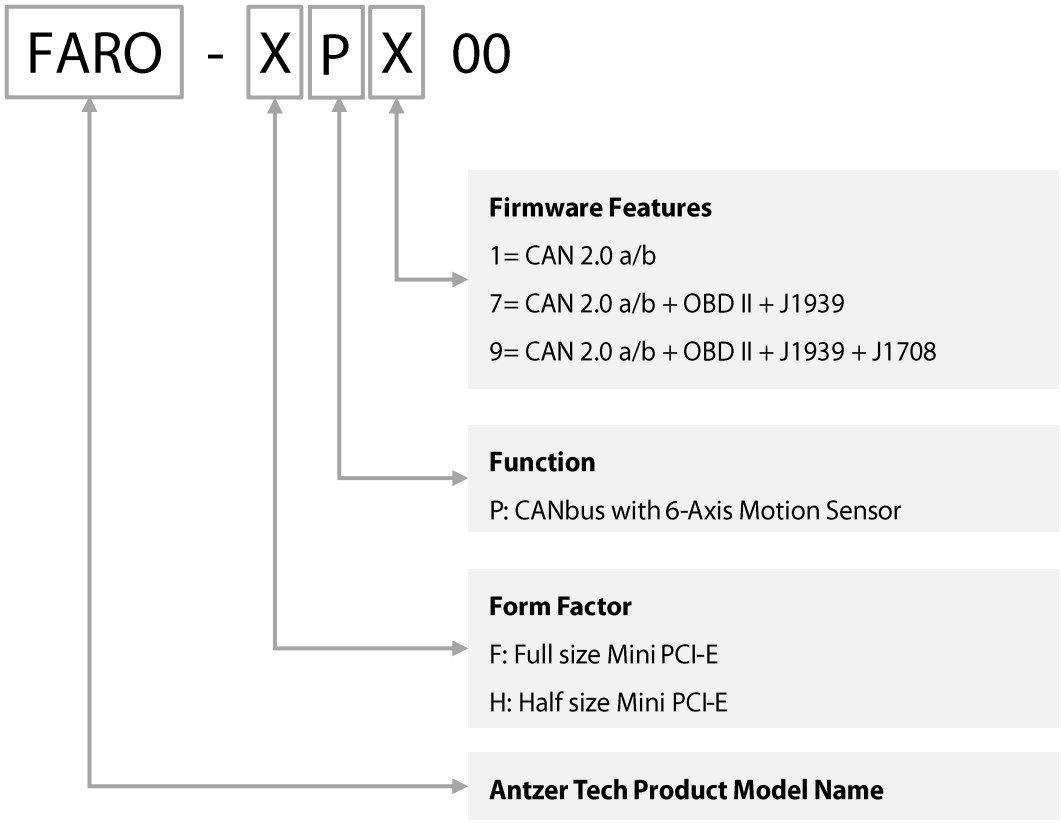
8.2 Certification and Compliance

Antzer Tech FARO CANbus Mini PCI-E module complies with the following standards:

- CE
- FCC
- RoHS
- MIL-STD-810G Vibration Compliant

9. Ordering Information

9.1 Product Code Designations



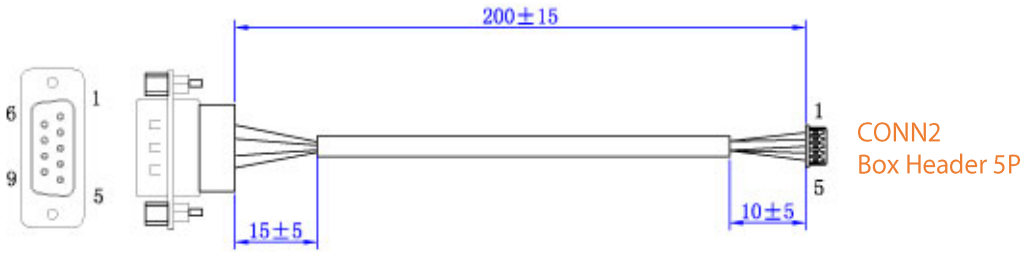
9.2 FARO CANbus Mini PCI-E Module Product Part Number

Part Number	Description
FARO-HP100	Half Mini PCIE(USB), 2 channels CAN 2.0A/B, Gyroscope, Accelerometer
FARO-HP700	Half Mini PCIE(USB), 2 channels CAN 2.0A/B, OBDII, J1939, Gyroscope, Accelerometer
FARO-FP900	Full Mini PCIE(USB), 2 channels CAN 2.0A/B, OBDII, J1939, x1 J1708, Gyroscope, Accelerometer

Appendix A Optional Cable & Accessory

1. **Part Number: T1700000008**

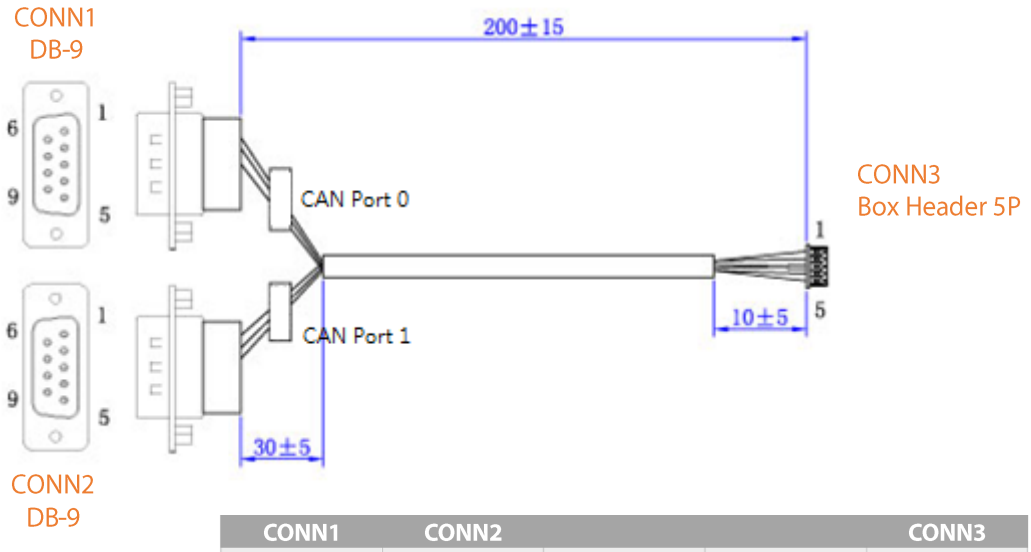
   FARO/GADN CANbus cable, Box Header 5P to DB9 Cable, 2 ch CAN, 200mm (CA0001)



CONN1			CONN2
PIN No.	FUNCTION	COLOR	PIN No.
2	Port 0 CAN L	WHITE	1
7	Port 0 CAN H	GREEN	2
3	GND	BLACK	3
4	Port 1 CAN L	WHITE	4
5	Port 1 CAN H	BLUE	5

2. **Part Number: T1700000009**

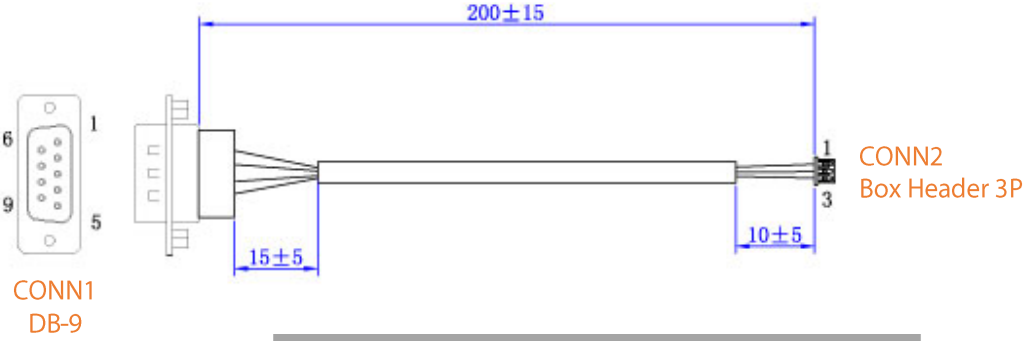
FARO/GADN CANbus cable, Box Header 5P to 2 DB9 Y Cable, 2 ch CAN, 200mm (CA0003)



CONN1	CONN2			CONN3
PIN No.	PIN No.	FUNCTION	COLOR	PIN No.
2		Port 0 CAN L	WHITE	1
7		Port 0 CAN H	GREEN	2
6		GND	BLACK	3
	2	Port 1 CAN L	WHITE	4
	7	Port 1 CAN H	GREEN	5
	6	GND	BLACK	3

3. **Part Number: T1700000010**

FARO/GADN J1708 cable, Box Header 3P to DB9 Cable, 1 ch J1708, 200mm (CA0005)



CONN1			CONN2
PIN No.	FUNCTION	COLOR	PIN No.
3	J1708_D-	WHITE	1
4	J1708_D+	BLUE	3
5	GND	BLACK	2

