

BPPLUS Piccolo Plus GPS Tracker Installation Manual



1.	Pinout Configuration	2
1.1	Wire pinout Configuration for Piccolo Plus.....	2
1.2	Piccolo Plus extended version - second connector pinout configuration.....	3
2	Installing the Piccolo Plus in your vehicle	4
2.1	Plug & Play Installation	4
2.2	Hardwire Installation.....	4
2.2.1	Piccolo Plus Standard Wire Harness Diagram	5
2.2.2	Piccolo Plus Hardwire Installation to Engine Diagnostics	6
3.	Piccolo Plus With Analog Input	11
4.	Piccolo Plus with External RFLink Reader	12
5.	External Antenna installation	12
6.	Piccolo Plus accelerometer mounting instructions.....	13
7.	Piccolo Plus WIFI Connection Test:	14
8.	Troubleshooting.....	14

1. Pinout Configuration

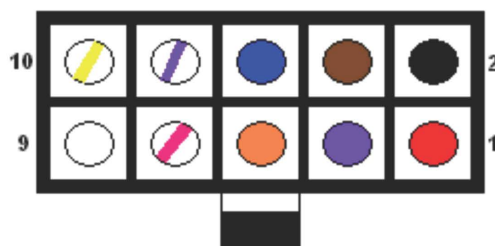
The Piccolo Plus is a modular unit with many options. This manual provides the wiring instructions for the two most popular configurations. For other cases a custom manual will be provided.

In order to prevent the need of using relays for IO connections, the PICCOLO PLUS has both positive and ground IO's. For example:

- Wiring the engine ON indication to one of the IO's is usually a positive input and all you need to do is take the +12 after the engine switch and wire it to the IO input designated to be a Positive IO in the diagrams below.
- A PTO on the other hand would be a Ground input IO.

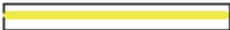
1.1 Wire pinout Configuration for Piccolo Plus

Back view of the connector

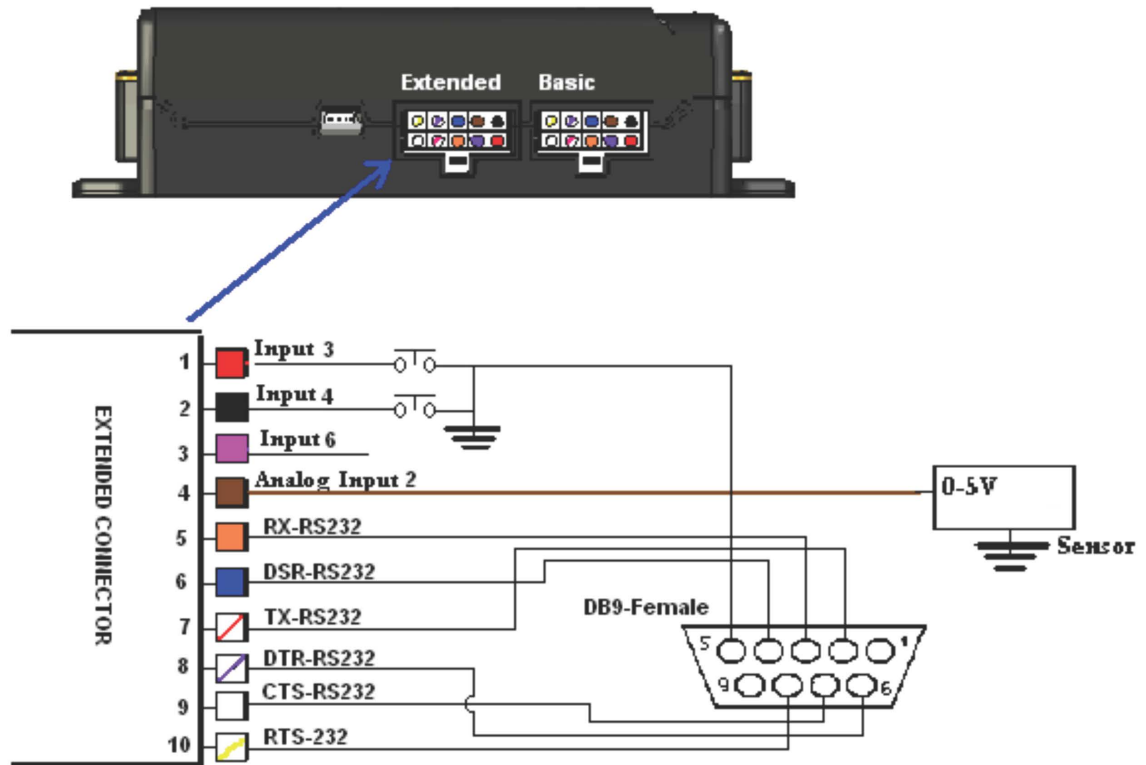


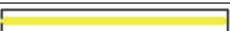
- The length of the wires is 4 feet, (1.5 meters) with gage AWG22

Piccolo Plus Basic configuration.

Pin #	Color of wire on mating connector	Pin Description	
1	Red	External power input Positive pin (+) 6 -32 Volts	
2	Black	Ground	
3	Purple	A2D / iButton	
4	Brown	500maOpen Collector output1	
5	Orange	Input1 negative input	
6	Blue	Input2 negative input	
7	White + red strip	500maOpen Collector output2	
8	White + purple	CAN H (J1939& OBDII) or J1708+or GARMIN FMI TX(output)	
9	White	Input5 positive input	
10	White + yellow strip	CANL (J1939 & OBDII) or J1708- or GARMIN FMI RX(input)	

1.2 Piccolo Plus extended version - second connector pinout configuration



Pin #	Color of wire on mating connector	Pin Description	
1	Red	Input3 negative input	
2	Black	Input4 negative input or optional GND upon request	
3	Purple	Input6 positive input or optional 5VDC output upon request	
4	Brown	A2D	
5	Orange	RS_RX	
6	Blue	RS_DSR for full RS232 or optional CANL upon request (see notes below)	
7	White + red strip	RS_TX	
8	White + purple	RS_DTR for full RS232 or optional CANH upon request	
9	White	RS_CTS for full RS232	
10	White + yellow strip	RS RTS for full RS232	

2 Installing the Piccolo Plus in your vehicle

Note: The Piccolo Plus supports three different Jbus protocols: CANBUS J1939, OBDII or J1708. J1939/OBDII is the default option, both protocols share the same hardware and the device simply needs to be configured for either J1939 or OBDII. J1708 requires different hardware components and is to be ordered in advance with this configuration.

2.1 Plug & Play Installation

1. Locate the vehicle's engine diagnostic port typically found in the driver's area, below the steering column at or below knee level.
2. Plug the Piccolo Plus into your vehicle's ECM port, which will look like one of the options below:

Green 9-PIN J1939



Black 9-PIN J1939



J1708 6-PIN



OBDII (16-PIN)



Note: We carry a variety of plug & play harnesses, make sure you've ordered the harness compatible with your vehicle. If you are unsure of which harness to use, please consult your sales representative.

2.2 Hardwire Installation

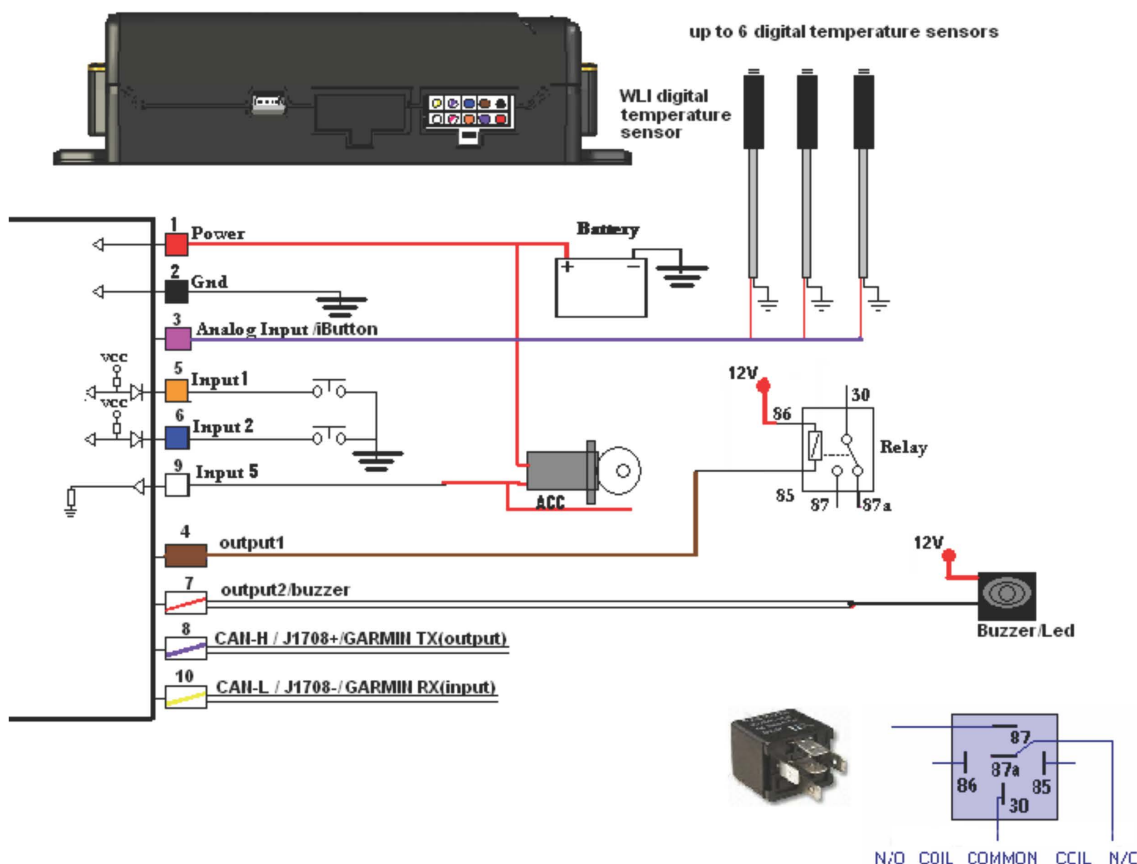
Pre-installation notes:

- Place the Power Connector at the location selected for the PICCOLO PLUS to be installed.
- Extend the red (+) and black (-) wires as needed to reach the vehicle's main battery.
- You must wire the PICCOLO PLUS directly to the battery without having any switches in between. You may wire the PICCOLO PLUS to a wire panel and /or fuse panel only if you have verified that the connection to the specific point at the control panel or fuse panel is straight from the battery.
- If the vehicle has more than one battery make sure the PICCOLO PLUS is wired to the main battery..
- If you need to connect IOs or sensors, such as temperature sensors, or an output command relay, follow the attached diagram.
- The PICCOLO PLUS has its own fuse so it is not mandatory to add an external 1A fuse to the red wire connected directly to the battery.
- If you have the external antenna option, do not plug the power connector to the PICCOLO PLUS until you install the antenna and you are ready to test the system.
- The PICCOLO PLUS must be mounted inside the vehicles cabin.
- If the unit has the accelerometer option, please read section 7 ([Piccolo Plus accelerometer mounting instructions](#)) of this document.

- If it is mounted under the dashboard, then make sure to secure it so it will not move. Try to find a metal support chaise for the dashboard and mount it or tape it depending on the case. Either way, make sure the Piccolo can not move, especially if you use the internal antenna option because if the unit moves the antenna will not see the satellites and there will be an interruption in the GPS readings.
- If you need to use screws, make sure to plug in the two side plastic holders supplied with every PICCOLO PLUS. Mount the PICCOLO PLUS at the selected location in the vehicle and install it with 2 screws. It is recommended to install the PICCOLO PLUS in a place that is out of reach from the driver.
- To prevent driver tampering, once the PICCOLO PLUS is mounted, it is recommended to put transparent SILICON or Hot Glue around the connector and around the two antenna connectors.

2.2.1 Piccolo Plus Standard Wire Harness Diagram

NOTE: The temperature sensor should be connected when power is off, otherwise the unit will not recognize it. Don't use shielded cable for the connection. Maximum Cable length 15m – 49feet

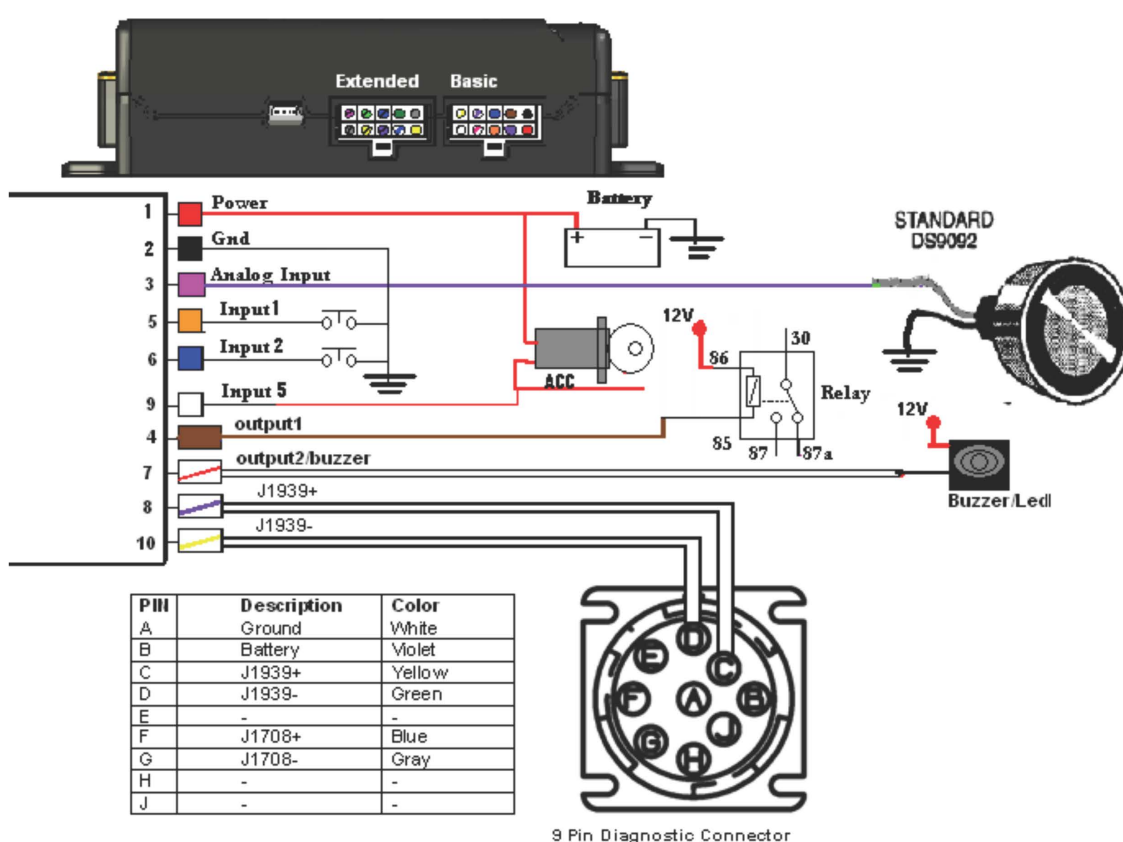


2.2.2 Piccolo Plus Hardwire Installation to Engine Diagnostics

The PICCOLO PLUS supports three protocols for OBD connection: CANBUS J1939, OBDII, or J1708. The J1939 and OBDII consists of the same hardware with different configuration. The J1708 is a different hardware option.

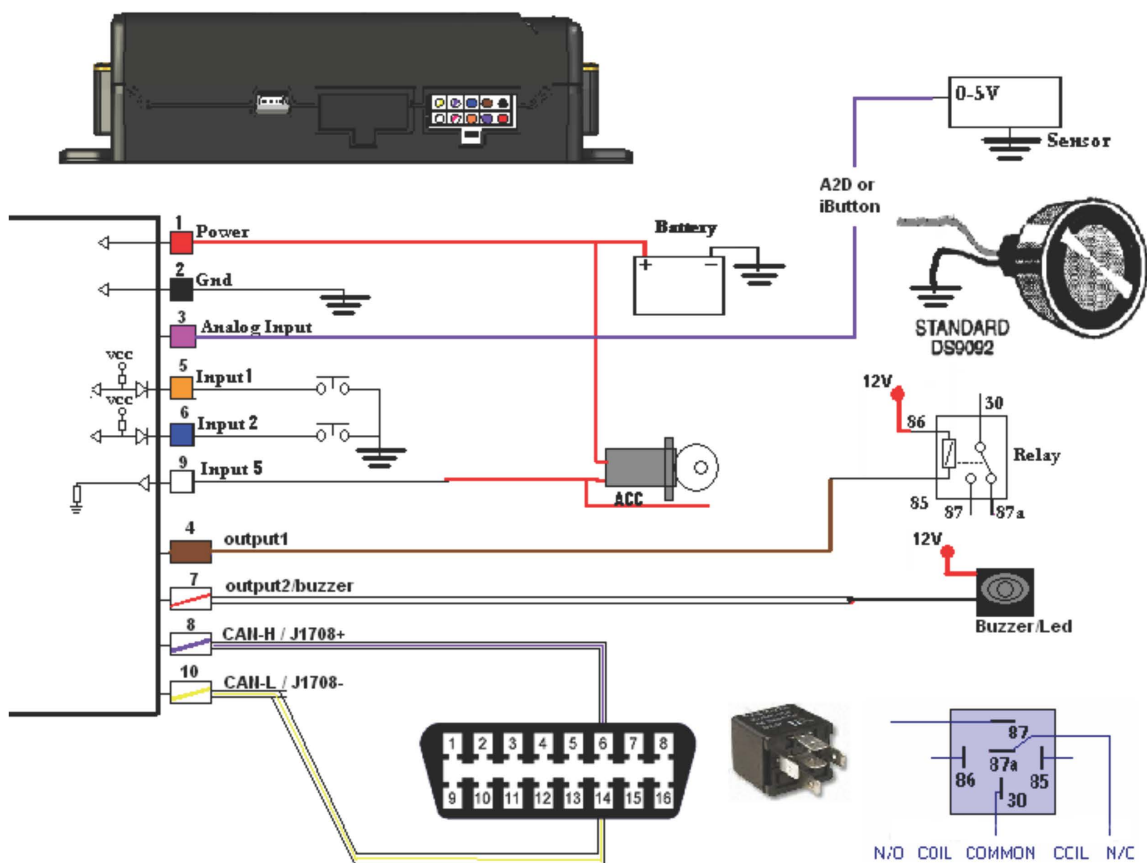
Below are 2 examples of standard OBD connectors that can be found in International and MACK trucks. Other brands might use different connectors. It is the customer's responsibility to figure out the specific connector wiring. You need to find the Can H and Can L and wire the Piccolo corresponding wires accordingly.

2.2.2.1.1 9 Pin Diagnostic Connector Pin out Installation



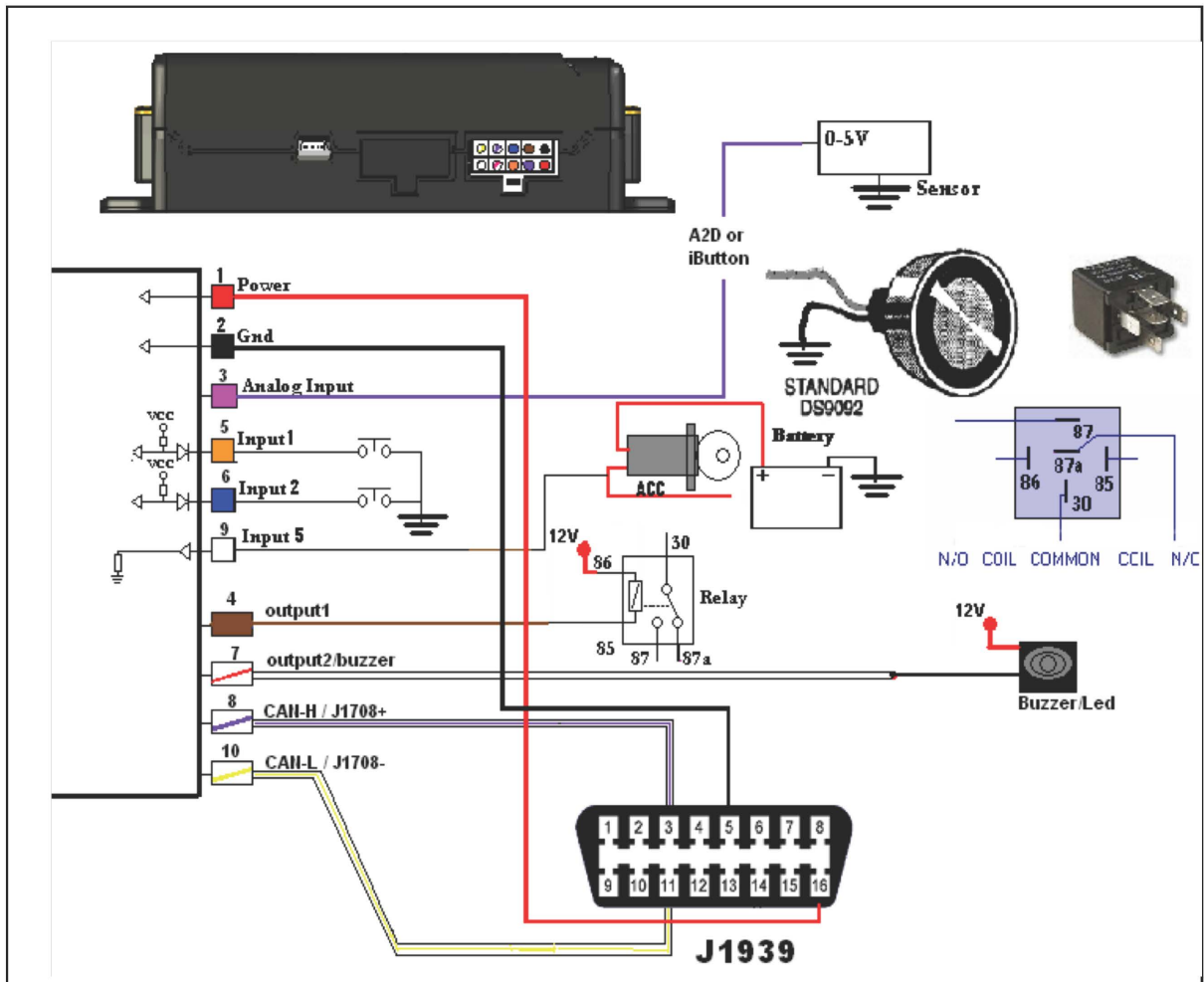
Note: Pinout wiring color may vary from manufacturer to manufacturer. As long as the connector is the same, go by the pin number and not by the color.

2.2.2.1.3 OBDII Diagnostic connector pinout

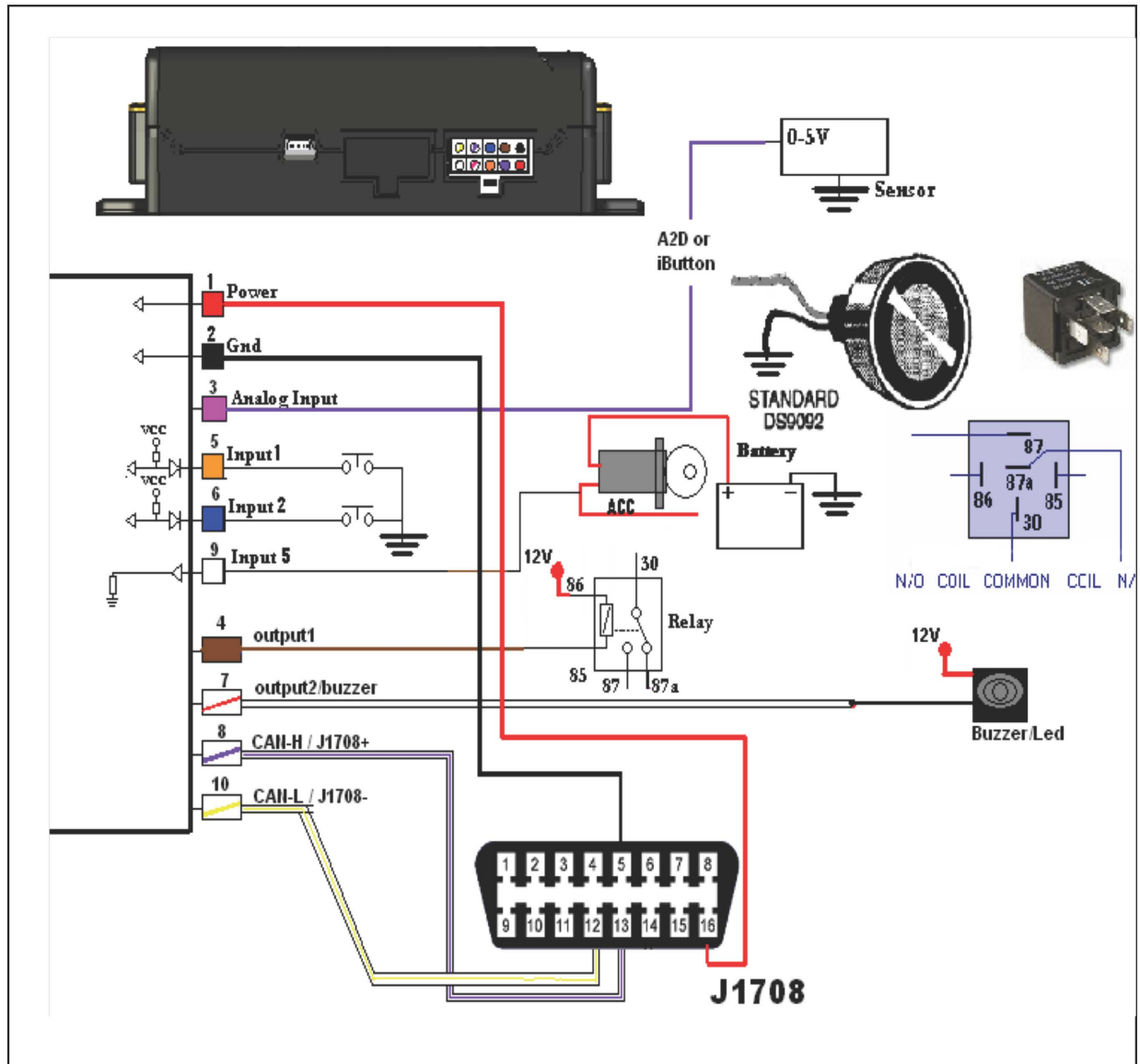


PIN	Description
6	CANH
14	CANL
16	Battery
4	Chassis
5	Ground

2.2.2.1.4 16 PIN Diagnostic connector pinout for Volvo/Mack Trucks with J1939



2.2.2.1.5 16 PIN Diagnostic connector pinout for Volvo/Mack Trucks with J1708



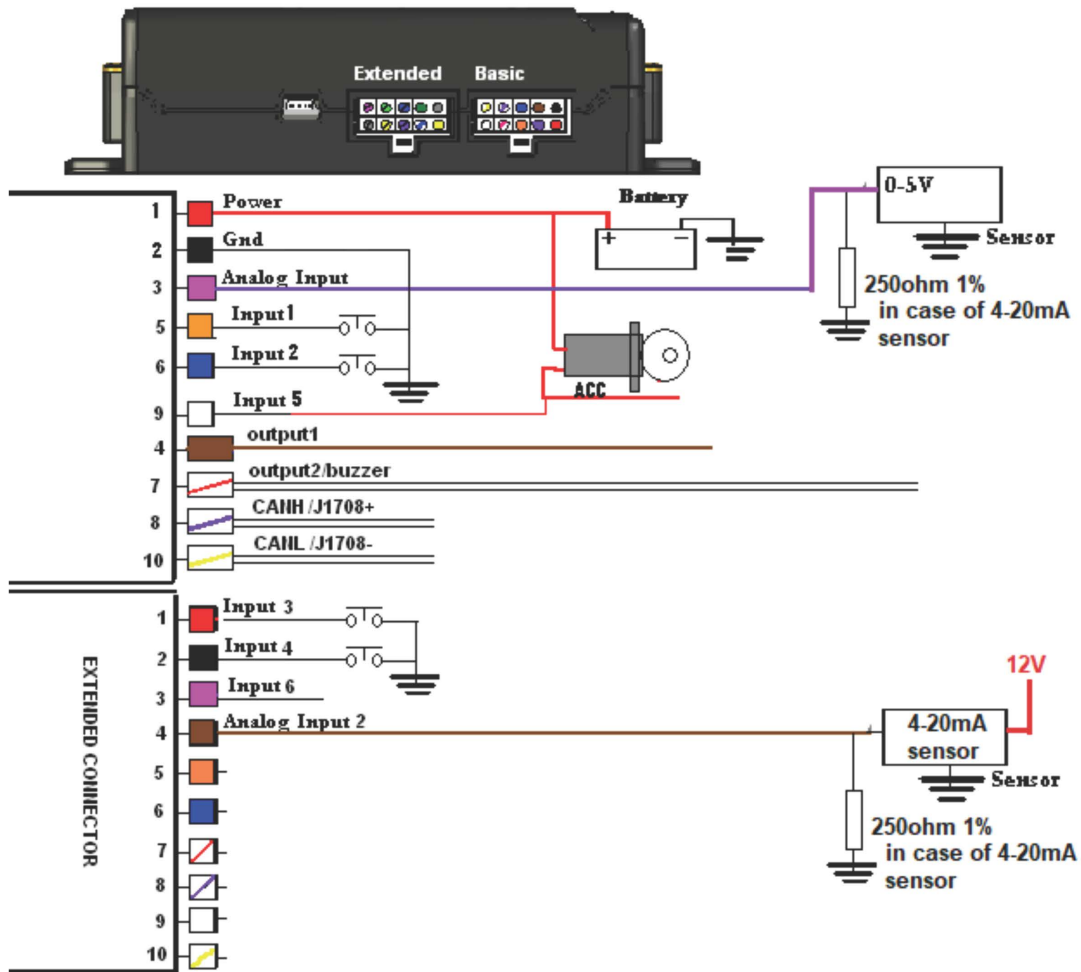
3. Piccolo Plus With Analog Input

On the base connector the purple wire is the analog input shared with I-button

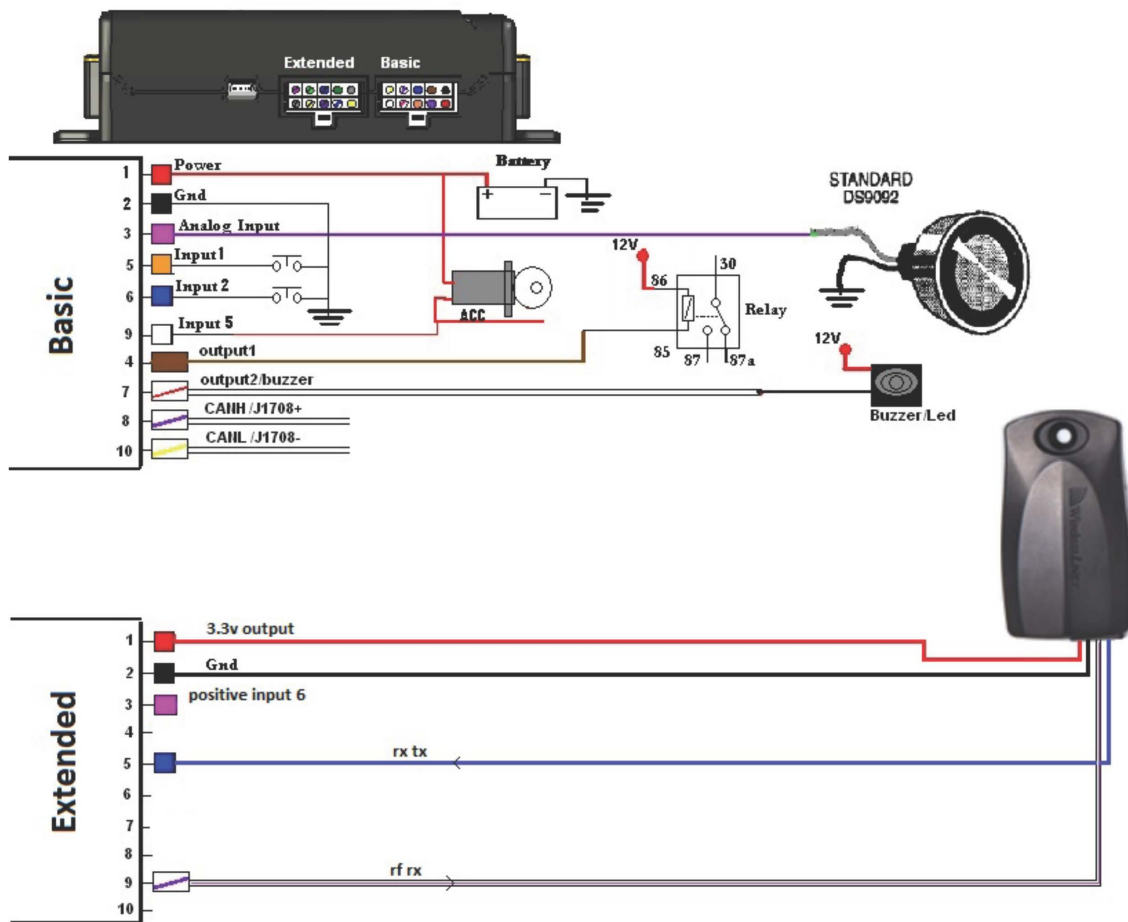
The input can accept 0-5V

In order to read 4-20mA a 250ohm resistor needs to be connected between the analog input and GND.

For Piccolo Plus devices with an extended connector the brown wire is the analog input



4. Piccolo Plus with External RFLink Reader



5. External Antenna installation

If your unit is packaged with integrated internal antennas, proceed to section 3.

- Magnetic Antenna (for demos)** - For short 1-7-day demo installations, place the antenna on the roof and make sure the magnet holds strong. Then, run the antenna wires into the cabin to the PICCOLO PLUS in a way that will not interfere with the driver. For example, run the wires below the back of the driver or passenger seat.
Do not place the Magnetic antenna on the dashboard.
- Magnetic Antenna (permanent installations)** - Install the antenna under the dashboard in a position that the antenna's top (black side) can see the sky. The antenna must be positioned beneath the plastic dashboard under the slope of the windshield. The GPS antenna must not have any metal blocking its exposure to the sky.

The antenna must be adhered with strong two-sided tape and preferably reinforced with silicon and/or hot glue.

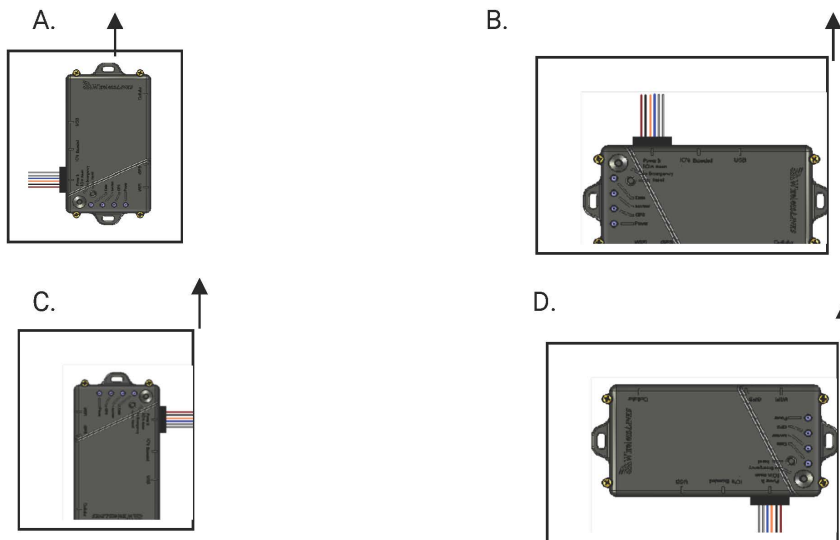
- c. **Screw Antenna** – make a hole on the cabin's roof and install the antenna. Run the antenna wires from the antenna to the PICCOLO PLUS using the most concealed and shortest path.
- d. **Antenna Connectors (external antenna only)** – Make sure to connect the antenna wire labeled "GPS" to the GPS connector on the PICCOLO PLUS and connect the cellular wire from the antenna to the remaining cellular connector.

6. Piccolo Plus accelerometer mounting instructions

For optimal performance, the Piccolo plus needs to be straight leveled and pointed in the driving direction with the LEDs pointing to the sky.

Driving direction can be one of the following 4 positions:

**It is recommended to install all units for a given fleet in the same orientation.*



The configuration (see "service configuration" section in the PICCOLO PLUS user guide) should be according to the driving direction shown by the arrow above. Choose the direction from the pull down menu in the configuration software as follows:

A->Power cable Left, sticker down

B->Power cable forward, sticker down

C->Power cable Right, sticker down

D->Power cable Backward, sticker down

7. Piccolo Plus WIFI Connection Test:

In order to test the unit WIFI, you must have a mobile device (smartphone, tablet, etc)

- a) You will be able to access the internet **only** when the modem LED is green and the unit is Connected to the network
- b) When the connection between the PDA/Laptop/Desktop and the Piccolo Plus is established, the Piccolo plus Data LED will slowly blink in the following manner:
 - When the Piccolo Plus has no data to be sent to Host: 300 ms Green, 1700ms Off
 - When the Piccolo Plus has data to be sent to Host: 300 ms Yellow, 1700ms Red
- c) When the connection between the PDA/Laptop/Desktop and the Piccolo Plus is not established, the Piccolo plus Data LED will slowly blink in the following manner:
 - When the Piccolo Plus has no data to be sent to Host: 1700 ms Green, 300ms Off
 - When the Piccolo Plus has data to be sent to Host: 1700 ms Yellow, 300ms Red
- d) When connection between PDA/Laptop and Piccolo Plus is lost (e.g., WiFi is turned off on PDA side), it takes about 30 seconds until Piccolo Plus unit will detect disconnection

8. Troubleshooting

- If the Power LED of the PICCOLO PLUS does not turn green when you connect the connector:
 - Disconnect the connector and check with a Volt Meter that 12VDC power is reaching the PICCOLO PLUS.
 - If the GPS LED does not blink green, check that the device is installed properly and in view of the sky. If you checked all of the above and the GPS light still does not turn green press the RESET button.
 - If the modem light does not turn green in a few minutes press the RESET button. If it is still not green, check with your cellular provider to see if there is coverage in your area. If there is cell phone coverage the modem light should be green.