RAND M^CNALLY

OBDII Converter Installation Instructions

For use with your TND™ 760 & Light or Medium Duty Cars or Trucks

1. Introduction

The OBDII converter kit is an off-the-shelf product from B&B Electronics. The OBDII converter enables the Rand McNally TND™ 760 to connect to the OBDII data bus in light duty vehicles and passenger cars.

This document describes how to connect the OBDII converter to the TND™ 760, and the operational considerations to be aware of when using the OBDII converter as part of your vehicle monitoring system.

Additional documentation can be found at **www.randmcnally.com/OBDII.**

2. Installation

2.1 Warnings ⚠

Rand McNally recommends that a professional automotive technician install the OBDII converter.

A common installation location is under the dash of the vehicle. The installer must be careful to secure the OBDII converter and any wiring in a location that will not interfere with the driver, the operation of the vehicle, or the operation of the airbag system. The installer must also consider the possibility that the mounting hardware may fail. Similarly, such a failure should not cause interference with the driver, the operation of the vehicle, or the operation of the airbag system.

2.2 Required Items

❶ B&B OBDII Converter Kit
Part Number: RMLDVSV2-KIT

Kit contains the following items:
1A. OBDII Converter
1B. OBDII Converter Mounting Hardware (zip ties & double-sided tape) (not pictured)
1C. OBDII Y Cable

❷ Rand McNally TND™ 760 Flying Lead Cable with B&B Termination
Part Number: 052800655

2.3 OBDII Converter Installation Process

1. Unmount the vehicle OBDII connector.
2. Mount the OBDII connector on the OBDII Y cable where the vehicle OBDII connecter was located.
3. Plug the OBDII Y cable to the OBDII converter, and secure it by tightening the two screws on the cable.
4. Connect the OBDII plug on the OBDII Y cable to the vehicle OBDII port.
5. Connect the TND™ 760 flying lead cable to the OBDII converter, and secure it by tightening the two screws on the cable.
6. Connect the TND™ 760 cable to the TND™ 760.
7. At this point the installer should perform the verification test identified in section 2.4. *NOTE: If there are any issues with the connections, it will be easiest to trouble shoot before securing the OBDII converter and the cables.*
8. Mount the OBDII converter in a secure location.
9. Secure all loose cables, with the zip ties or double-sided tape provided in your converter kit.

2.4 Verification

Please follow these steps to verify the installation:

1. Before securing the OBDII converter under the dash, ensure the LEDs are visible to support a quick operational test.
2. With everything connected properly, turn the ignition to the ON position, and start the engine.
3. Watch the LEDs on the OBDII converter. You should see the OBDII converter in "detecting vehicle" mode and then transition to "normal operation" mode. LED definitions are shown in section 2.5 for reference.
4. Once the OBDII converter enters normal operating mode, it should begin to transmit data via the J1708 link to the TND™ 760 (this may take several seconds).
5. You will need to login to the TND™ 760. From the 760 main menu, click on **SYSINFO, DIAGNOSTICS**, and then **JBUS** to verify the 760 is receiving JBus data. It is normal to see a message that says "**MISSING PARAMETERS**" since not all vehicles support all the necessary parameters. Also, the OBDII converter computes some messages, and those messages may take additional time to initialize before they can be sent.

2.5 LED Operation

Mode	Red LED (Power)	Green LED (Activity)	Red LED (Debug)	Actual State	Customer Description
1	On	On	Off	Normal operation	Normal operation
2	On	SB	Off	Detecting vehicle	Detecting vehicle
3	Off	FB	Off	Database version mismatch	Database needs to be updated
4	Off	SB	Off	Update in progress	Update in progress
5	Off	VSB	VSB	Device asleep	Device asleep
6	Off	Off	Off	Device unpowered	Device unpowered
7	Off	On	FB	Error FPGA Image Invalid	Firmware needs to be updated
8	Off	Off	FB	Error with EMM code	Update System Manager
9	Off	Off	FB	EMM checking CRC of Images	Wait 10 seconds. If state does not change, see Mode 8.
10	Off	SB	FB	Error writing/reading to/from flash during update	Restart update of current component

LED state descriptions

On (LED_ON): lit, solid
Off (LED_OFF): unlit
FB (LED_FAST): Alternating on-off; 125ms on, 125 ms off
SB (LED_SLOW): Alternating on-off; 0.5s on, 0.5s off
VSB (LED_VERY_SLOW): Alternating on-off; 0.25s on, 2s off

3. Operational Considerations

Please consult the OBDII converter compatibility matrix to determine what parameters are and are not supported by a given vehicle. This document can be found at **www.randmcnally.com/OBDII**.

3.1 Odometer

Odometer information is not always directly available from the OBDII port.

In cases where the odometer information is not directly available from the OBDII port, the OBDII converter will calculate the odometer based on vehicle speed. In this case, the odometer starts at 0 and as a result the odometer value shown in the Rand McNally Connect web portal will not match the odometer shown in the vehicle. The odometer value is stored in memory in the OBDII converter. If the converter is moved to another vehicle, the odometer value will continue counting where it left off. There is currently no support to reset the calculated odometer value.

If the odometer information is available on the OBDII port, then the odometer value in the Rand McNally Connect web portal will match the odometer shown in the vehicle.

3.2 Fuel Consumption

Fuel consumption is not an OBDII emissions parameter nor is it typically available directly from manufacturer parameters on light duty vehicles. The OBDII converter calculates fuel consumption using a combination of emissions parameters on gasoline engines and manufacturer-specific parameters on diesel engines.

The fuel consumption value starts at 0. The value is stored in memory in the OBDII converter. If the converter is moved to another vehicle, the value will continue counting where it left off. There is currently no support to reset the fuel consumption value.

3.3 Fault Codes

The OBDII port provides DTC codes that are not compatible with J1708. Therefore, the TND™ 760 is not able to read any fault codes from the vehicle when using the OBDII converter.

3.4 Start Up Time

The TND™ 760 powers up automatically when it senses data on the J1708 or J1939 vehicle interface. The converter box works the same way, but it takes additional time for the converter box to initialize and to start sending J1708 messages to the TND™ 760. If you compare two systems side by side where one uses the OBDII converter, and the other connects to J1708 or J1939 data bus directly in a vehicle, the system using the OBDII converter will take a few additional seconds to turn on.

4. Definitions

Acronym	Definition
OBD	On-Board Diagnostics
Batt	Battery
Gnd	Vehicle Electrical Ground