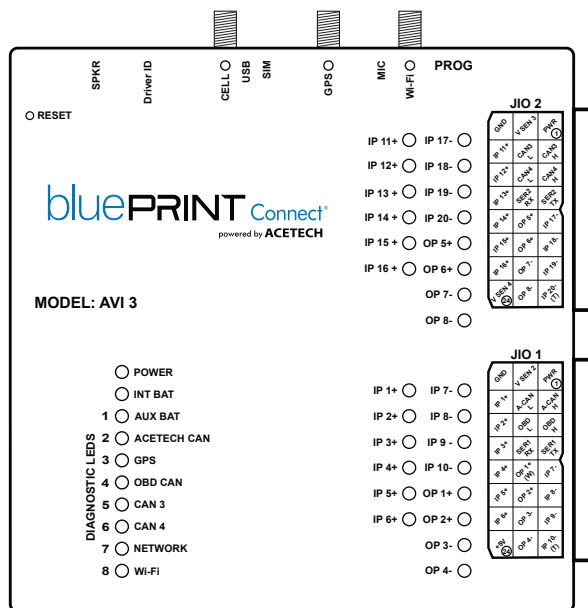


Part Number: ENGCKNTxx



INTRODUCTION

bluePRINT Connect[®] powered by ACETECH[™] brings telematics and cloud connectivity to the bluePRINT eco-system.

The benefits of bluePRINT Connect include (but are not limited to):

- Improved first responder safety
- Improved management of fleet assets
- Improved transparency and compliance
- Live, real-time vehicle data
- Customizable reports and analytics
- Predictive fleet maintenance and longevity

bluePRINT Connect is an easy add to any bluePRINT system utilizing SoundOff Central.

In addition, bluePRINT Connect can be used as a standalone product (minus bluePRINT specific features).

TECHNICAL SPECIFICATIONS

General Information	
Module Dimensions	6in x 6in x 1.3in 153mm x 153mm x 33mm
Operating Temperature	-40C - 85C
Compatibility	bluePRINT Central Controller bluePRINT 500 Controller
Input Voltage	9-16v
Input Current	150-200 mA
Standby Current	0 mA (when wired to ignition power source. See page 7 for more information on parasitic draw)
Fuse	Main Power, 3a Ignition & Charge Wires, 1a Each
Diagnostic LEDs	Power, Battery, CAN, GPS, OBD, Cellular
Network Support	GSM/GPRS, 3G, 4G/LTE, CDMA
Interfaces	USB, Ethernet, Serial
Minimum Required Controller Firmware	• 500 Controller - 1.17 (SoundOff Central) • Central Controller - 1.17 (SoundOff Central) • Central Controller - 3.22 (bluePRINT 3)*

*bluePRINT 3 signal support is limited to pre-mapped signals and does not offer user mappable features related to bluePRINT Connect. See page 7 for more details.

WARNING

- Reversing the power and ground connections will damage the unit and void the warranty.
- HIGH CURRENT interconnects must be properly terminated. Poor crimp quality can cause heat build-up and fire. Follow crimp connector manufacturer instructions. Always verify that the mating terminals for high current connectors use the same plating finish.
- DO NOT install this product or route any wires in the Air Bag Deployment Zone. Refer to vehicle Owner's Manual for deployment zones.
- Unit may become hot to touch during normal operation.
- Failure to properly install connectors, fuses or wiring may cause equipment or vehicle failure or fire.
- Installation must only be performed by trained technician. Installer must determine vehicle wiring configuration and proper integration of system.
- Use proper wire gauge. All power wires connecting to positive (+) or negative (-) battery terminal or local chassis ground (-) must be sized to supply at least 125% of max. current and properly fused at power source.
- Install protective grommets when routing wire through firewall or metal.
- It is the installer's responsibility to verify installation of special connectors or greases as listed in this installation manual. Neglecting to do so may result in product failure and/or warranty refusal.

NOTICE:

Installers and users must comply with all applicable federal, state and local laws regarding use and installation of warning devices.

Improper use or installation may void warranty coverage. To review our Limited Warranty Statement & Return Policy for this or any SoundOff Signal product, visit our website at <https://soundoffsignal.com/support-page/warranty/>. All returned items must be properly packed to prevent damage in transit.

*If you have questions regarding this product, contact **Technical Services**, Monday - Friday, 8 a.m. to 5 p.m. at **1.800.338.7337** (press #4 to skip the automated message). Questions or comments that do not require immediate attention may be emailed to techgroup@soundoffsignal.com.*

CAUTION & NOTICE TO THE INSTALLER

Make sure to read and understand all instructions and warnings before proceeding with the installation of this product. Ensure the manual and all warning cards are delivered to the end-user of this equipment. It is your sole responsibility to install this product in accordance with known automotive electrical best practices. Vehicle modification is done at the sole risk of the modifier and should follow vehicle manufacturer guidelines.

HARDWARE INSTALLATION & WIRE ROUTING

Locate a suitable mounting location that is cool and dry. Before drilling holes, check for clearance to prevent damage to the bluePRINT Connect assembly, cabling, or any other components being installed. Check both sides of the mounting surface before drilling and be aware of any vehicle components or other vital parts that may be damaged during drilling. It is the installer's responsibility to verify this information.

WARNING: DO NOT MOUNT COMPONENTS IN OR ROUTE WIRING THROUGH AIR BAG DEPLOYMENT ZONES.

1. Mark the anchor points where the bluePRINT Connect assembly is to be mounted. Please pay special attention to the orientation, as shown in the pop-out section to the right "Directional Orientation."
2. Remove the assembly from the mounting area.
3. If necessary, pre-drill any mounting holes into the mounting surface.
4. Secure the assembly to the mounting surface with appropriate hardware.

FLYING LEADS - POWER, GROUND, BUZZER & FUSING

WARNING: TO AVOID DAMAGE OR INJURY, DO NOT CONNECT POWER WHEN CIRCUIT IS LIVE. Install fuse only after all connections are verified to be correct and secure.

See the schematics on pages 4-6.

Pink - Extend and connect directly to a fused 9-16 VDC ignition source. Fuse at 1A.

Red - Extend and connect to a fused 9-16 VDC blueprint or timed source that shuts off at least 15 seconds after ignition. Fuse at 3A. See page 6 for additional wiring information.

Red/White - Extend and connect to a constant battery source. Fuse at 1a. This is the backup battery charging wire.

Orange - See page 6 for wiring information.

Black - Extend and connect this wire to an OEM specified ground location as close as possible to the bluePRINT Connect assembly. Refer to OEM modifier guides for proper ground point locations

Gray - Extend and connect this wire to the optional safety buzzer (sold separately). This wire serves as the positive output to the safety buzzer.

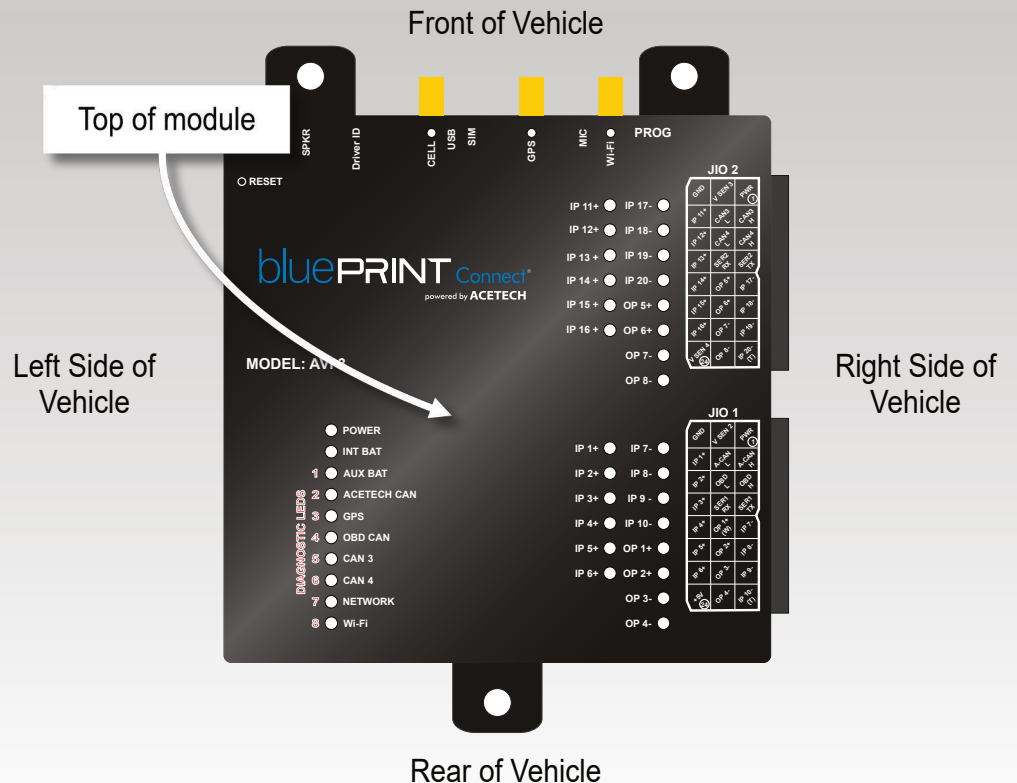
DIRECTIONAL ORIENTATION

bluePRINT Connect includes an multi-axis accelerometer for impact and rollover detection.

Unless programmed otherwise (at time of ordering, or via the cloud interface), bluePRINT Connect must be mounted horizontally to a stationary position with the JIO1 and JIO2 connectors facing to the right side of the vehicle when the bluePRINT Connect Label is facing up. Do not install onto sliding trunk trays. If this orientation needs to be adjusted, please contact SoundOff Signal Technical Support.

NOTICE: PROPER INSTALLATION OF THE BLUEPRINT CONNECT ASSEMBLY REQUIRES MOUNTING ON FLAT SURFACES.

NOTICE: IF BLUEPRINT CONNECT MUST BE MOUNTED IN A DIFFERENT ROTATION, ORIENTATION, OR ANGLE THAN SHOWN BELOW, PLEASE CONTACT SOUNDOFF SIGNAL TECHNICAL SERVICES TO RECALIBRATE THE ACCELEROMETER.



ANTENNA

The included antenna is multi-band for cellular and GPS. Thread the SMA connectors for each onto the antenna receptacle for Cellular and GPS. Follow the labels on the antenna regarding which is which. The included antenna is designed for glass mounting using adhesive. Surface prep with isopropyl alcohol is recommended. The antenna should be placed away from metal, windows with metal, or window tint with metal.

Aftermarket antennas can be used with bluePRINT Connect - however technical support will be limited.

For more information on antenna specifications, please refer to page 7.

DATA CONNECTIONS

bluePRINT Connect Harness - Connect labeled J10 1 and J10 2 connectors to the ports labeled J10 1 and 2 on the main assembly. Ensure these are fully seated and snapped into place.

bluePRINT Link CAN T-Harness - As shown on pages 4-5, the included T-Adapter connects to the bluePRINT Link Vehicle harness, and splits to both the bluePRINT Link Module and bluePRINT Connect vehicle CAN connector (labeled "Connector 3" on pages 4-5).

Optional extension cables are available in 5 and 15 foot lengths. Please see the replacement parts table on page 7 for more information

Follow the instructions for the vehicle specific bluePRINT Link harness for connecting to the vehicle.

NOTE: bluePRINT Link kits, modules, and vehicle harnesses are sold separately.

bluePRINT CAN Control (500 Series) - This connector is only used when connecting to a 500 Series Control System. It is shown as "Connector 4" on pages 4-5. It should be connected to CN9 on the 500 Series Control System.

bluePRINT CAN Control (Central Controller) - When used in conjunction with a bluePRINT Central Controller, the 6-position plug is not used.

However, the red wire going into position 1 of this connector should be cut from the connector and moved to a 1A fused 9-16v power source to provide voltage sense to bluePRINT Connect.

USB Connection - The included USB cable connects between bluePRINT Connect (USB Mini-B) and the port on either the 500 Series Control System or Central Controller (USB Standard B).

Driver ID Module (Sold Separately) - Connect the Driver ID module to the port labeled Driver ID. The Driver ID module comes unassembled in two pieces:



Connector 5 - This four position connector plugs directly into the bluePRINT Connect Module.



Driver ID Receiver - This unit gets mounted in the driver area of the vehicle, for quick access. The receiver comes with 15 foot leads that can be shortened as needed.

The receiver wiring is spliced color for color to the four position connector.

The four wire colors are:

- Red
- Yellow
- Orange
- Black

The Driver ID module is shown as Connector 5 on pages 4-5.

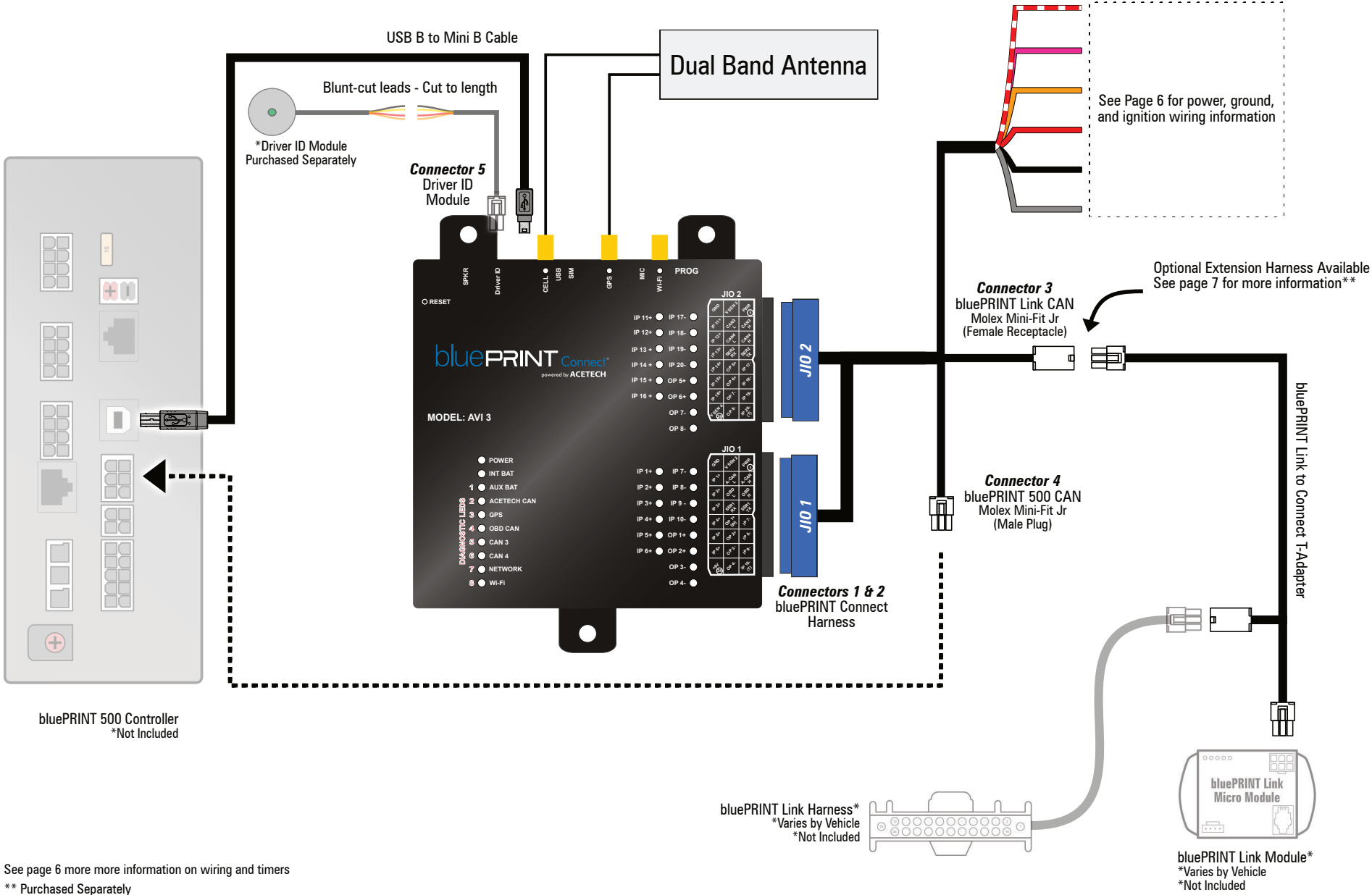
NOTICE: TO PREVENT STRAIN ON ALL CONNECTORS AND TO ALLOW FOR EASE OF FUTURE SERVICEABILITY, WE RECOMMEND INSTALLERS LEAVE SUFFICIENT EXTRA LENGTH OF WIRE TO PROVIDE A SERVICE LOOP. THIS SERVICE LOOP SHOULD BE SECURED TO THE INSTALLATION PLATFORM OR A TIE DOWN POINT.

WIRE AMPERAGE TABLE

AMPERAGE

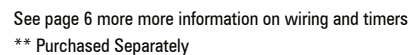
	1	2	3	4	5	7.5	10	15	20	25	30	40	50
20	25.6	12.8	8.5	6.4	5.1								
18	40.7	20.3	13.6	10.2	8.1	5.4							
16	64.7	32.3	21.6	16.2	12.9	8.6	6.5						
14		51.4	34.3	25.7	20.6	13.7	10.3	6.9	5.1				
12		81.7	54.5	40.9	32.7	21.8	16.3	10.9	8.2	6.5	5.4		
10			86.6	65.0	52.0	34.7	26.0	17.3	13.0	10.4	8.7	6.5	5.2
8					82.7	55.1	41.3	27.6	20.7	16.5	13.8	10.3	8.3
6						87.6	65.7	43.8	32.9	26.3	21.9	16.4	13.1
4								69.7	52.2	41.8	34.8	26.1	20.9

WIRING DIAGRAM - 500 CONTROL SYSTEM



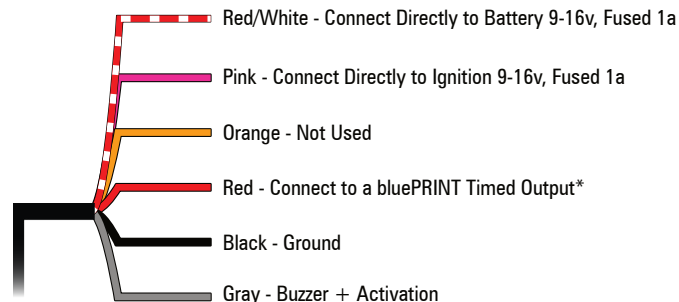
See page 6 more more information on wiring and timers
** Purchased Separately

bluePRINT[®] Connect[®]
powered by ACETECH[™]



WIRING DIAGRAM - POWER AND TIMER WIRING

Using a bluePRINT output for Power Management



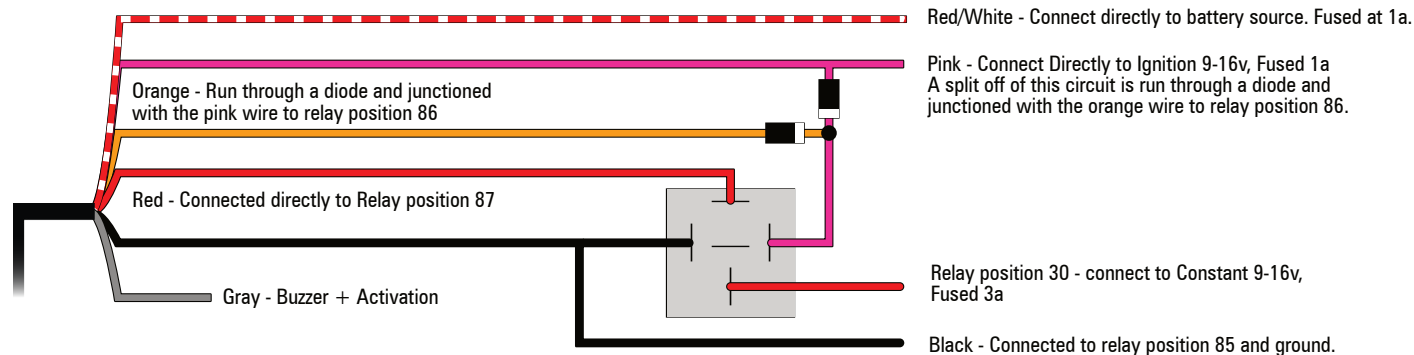
*When using bluePRINT to manage power to bluePRINT Connect, an output from bluePRINT is connected to the red wire of bluePRINT connect.

This output needs to be configured with the following:

- Virtual Fuse is set to 3a
- Mapped to Ignition
- Ignition Off Delay for this output is set to at least 15 seconds.

The orange wire is not used in this installation.

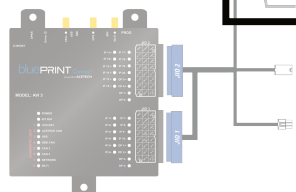
All Other Installations



In all other installation types, the following installer supplied parts are necessary:

- 1x Bosch 332209150 relay, or equivalent
- 2x 12v 3a Diodes

In this case the orange wire is used as a timer for the relay, after ignition is turned off.



TESTING AFTER INSTALLATION

After installation and energizing the device, verify the following LEDs are showing normal operation as described in the table to the right:

- POWER
- ACETECH CAN (if using bluePRINT 500)
- GPS
- OBD CAN
- CAN 3
- NETWORK

Some of the communications LEDs may take up to five minutes to initialize. In some cases, ensuring the vehicle is outdoors and has a clear view to the sky, can speed this process up.

System Off State - Parasitic Test

As described during installation, the red input voltage wire should be connected to a timed source. Verify that power to the unit is being removed after the timed source is turned off.

Note: bluePRINT Connect utilizes a backup battery. It may show as active (LEDs on) even after power has been removed.

PROGRAMMING CONSIDERATIONS

bluePRINT Connect® powered by ACETECH™ offers various programming features, both through SoundOff Central bluePRINT Software, and the bluePRINT/ACETECH cloud interface.

Pre-mapped Functions

For installers configuring bluePRINT and bluePRINT Connect - the following functions are pre-mapped in SoundOff Central and notify the bluePRINT/ACETECH cloud when active.

- Siren Active (Any tone)
- Fault - Primary Siren Speaker
- Fault - Secondary Siren Speaker
- Horn Ring
- Lightbar Traffic - L, R, Both
- Lightbar - Rear Corner
- Lightbar - Front Corner

User mapped functions

The following functions are available for mapping:

- Lights - Rear
- Lights - Front
- Lights - High Priority
- Gun Release
- Custom and re-nameable signals 1-4

Using Diagnostics through SoundOff Central

Since the USB port is necessary for both bluePRINT Diagnostics and bluePRINT Connect, only one can be connected at a time. This means while in bluePRINT Diagnostics, there will be no connection to the cloud - nor can any mappings involving the cloud be tested.

Firmware Update

Please make sure firmware is up to date on the 500 or Central Controller at the time of installation. For the required version of firmware, refer to page 1 of this document.

Status LED Descriptions

LED Position	Function	States
● POWER	Indicates System Power	• Green - Normal Operation • Red - System Sleep State
○ INT Bat	Internal Battery Status	• Off - Normal Operation • Yellow (Flashing) - Low Charge State • Red (Flashing) - Critical Charge State • Red/Yellow Alternating - Charging • Red (Steady) - Charging Error
○ AUX Bat	Auxiliary Battery Status	• Off - Normal Operation • Yellow - Low Charge State • Red - Critical Charge State
● ACETECH CAN	bluePRINT 500 Communication CAN	• Green - Normal Operation • Red - Communication Error
● GPS	GPS Module Feedback	• Green (Steady) - Normal Operation • Green (Flashing) - Acquiring GPS Lock
● OBD CAN	Vehicle Communication CAN	• Green - Normal Operation • Red - Communication Error
● CAN 3	Vehicle Communication CAN	• Green - Normal Operation • Red - Communication Error
○ CAN 4	Not Used	• Green - Normal Operation • Red - Communication Error
● NETWORK	Cellular Network Status	• Green (Steady) - Normal Operation • Green (Flashing 2+/sec) - Normal Operation • Green (Flashing 1/sec) - Acquiring Network • Red - Modem Initializing
○ WIFI	Not Used	

Accessories and Replacement Parts

Part Number	Description
Accessories	
ENGCHN01	5 Ft Extension CAN Harness for use with bluePRINT Connect and bluePRINT 500 Siren Control System
ENGCHN02	15 Ft Extension CAN Harness for use with bluePRINT Connect and bluePRINT 500 Siren Control System
PNGCNAT02	Roof Mount Antenna for use with bluePRINT Connect
ENGCKNT03	Driver ID Module & Harness
ENGCFB01	Driver ID Keyfob
ENGCBZ01	In-cabin Safety Buzzer
Service Parts	
PNGCNAT01	Replacement Glass Mount Antenna for use with bluePRINT Connect
PNGCHN01	bluePRINT Connect to bluePRINT Link T-Adapter Harness (Ford)
PNGCHN01	bluePRINT Connect to bluePRINT Link T-Adapter Harness (GM, Dodge, RAM)
PNGCHN03	bluePRINT Connect Main Harness
PNGCHN04	USB Harness for use with bluePRINT Connect

Antenna Specifications for bluePRINT Connect

Description	Specification
Interface Connector	• 2x SMA Male
Antenna Frequency	• GSM - 698-960 Mhz, 1710-2170 Mhz, 2300-2700 Mhz • GPS - L1:1575.42 Mhz ± 1.023 Mhz
Voltage	• 2.2 - 5 VDC
Gain	• GSM - 5 dBi • GPS - 2 dBic
Impedance	• 50 Ω
Power	• ~ 15 mA