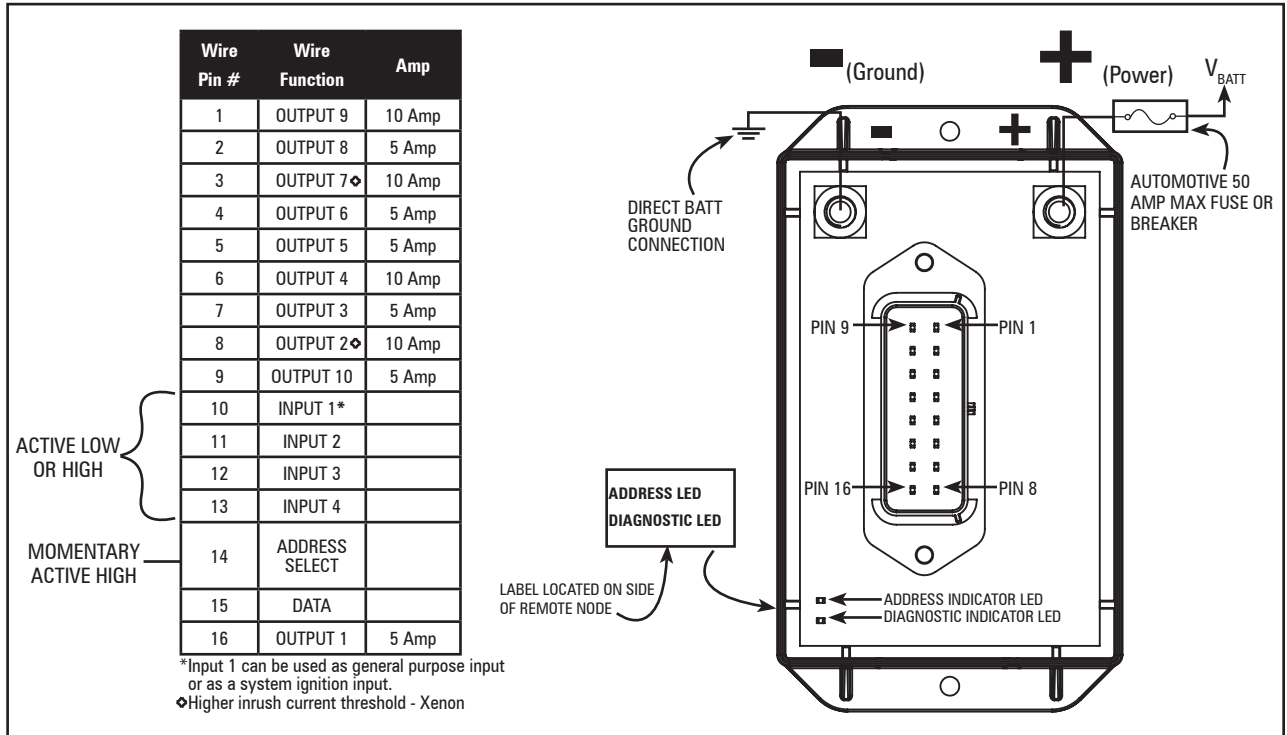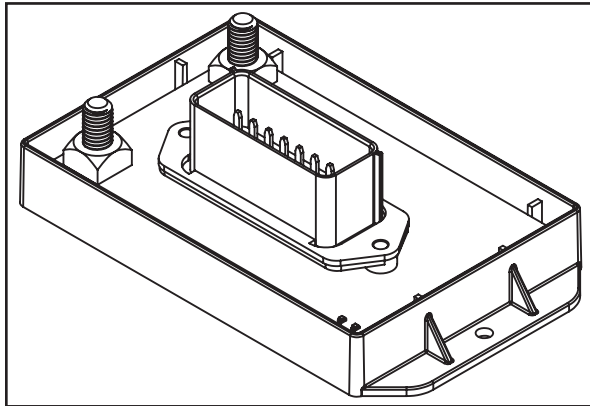# bluePRINT®

REMOTE NODE
PART NUMBER: ENGND04101

The Remote Node provides 10 outputs for connection to vehicle devices (up to 50 Amps max - see operating temperature limits).
- (4) 10-amp solid state switchable outputs
- (6) 5-amp solid state switchable outputs.

The Remote Node also provides 4 inputs to control systems.
- Active High/Low selectable.

Wire Pin #	Wire Function	Amp
1	OUTPUT 9	10 Amp
2	OUTPUT 8	5 Amp
3	OUTPUT 7◇	10 Amp
4	OUTPUT 6	5 Amp
5	OUTPUT 5	5 Amp
6	OUTPUT 4	10 Amp
7	OUTPUT 3	5 Amp
8	OUTPUT 2◇	10 Amp
9	OUTPUT 10	5 Amp
10	INPUT 1*	
11	INPUT 2	
12	INPUT 3	
13	INPUT 4	
14	ADDRESS SELECT	
15	DATA	
16	OUTPUT 1	5 Amp

ACTIVE LOW OR HIGH (pins 10–13)

MOMENTARY ACTIVE HIGH (pin 14)

*Input 1 can be used as general purpose input or as a system ignition input.
◇Higher inrush current threshold - Xenon

See attached Install Template to aid in connections and programming

— (Ground)   + (Power) V_{BATT}

AUTOMOTIVE 50 AMP MAX FUSE OR BREAKER

DIRECT BATT GROUND CONNECTION

PIN 9   PIN 1
PIN 16   PIN 8

ADDRESS LED
DIAGNOSTIC LED

LABEL LOCATED ON SIDE OF REMOTE NODE

ADDRESS INDICATOR LED
DIAGNOSTIC INDICATOR LED

Please see next page for Technical Specifications

⚠ WARNING

- HIGH CURRENT interconnects must be properly terminated. Poor crimp quality can cause heat build-up and fire. Follow crimp connector manufacturer instructions.
- DO NOT install this product or route any wires in the Air Bag Deployment Zone. Refer to vehicle Owner's Manual for deployment zones.
- Do NOT use system to disconnect headlights, brake lights or other safety equipment.
- Unit may become hot to touch during normal operation.
- Failure to properly install connectors, fuses or wiring may cause 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 and fuse for the application/current draw. 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.

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⚠ WARNING

- Not Reverse Polarity Protected. Verify Power and Ground connections before energizing.
- Install fuse or breaker (size for 50Amps max.) on main power supply.
- Install included mounting plate between Remote Node and the vehicle to maintain flatness.
- Do NOT connect product to strobe power supply. Product is self-contained; no external power supply needed.
- Follow attached Wiring and Interconnect requirements.
- Torque the provided M8 nuts with lock washer to a maximum of 7ft-lbs. on power terminals.
- Verify that the lockwasher is fully seated when assembled.
- Verify wire outside diameter is sized properly to work with seals on 16pin connector (see pg. 3).

SETTING NODE ADDRESS
To set the node addresses:
1. Default address is 1.
2. Momentarily connect power to PIN 14.
3. Address indicator LED will wink the address (1-5).
4. Repeat until the correct address is selected.
5. After address 1 is set it will cycle through the addresses until it gets back to 1.

DIAGNOSTIC LED
- The diagnostic LED is steady on when the device is powered up and running with no errors.
- The diagnostic LED is off when the device is off or in sleep mode.
- The diagnostic LED winks when there is a system fault or the device is in firmware upgrade mode.
  - Fault condition is read by counting the number of times the LED "winks" on. Each fault condition will generate a pattern where each "wink" is 250ms off/250ms on. The pattern is terminated by the LED being off for 2.5 seconds.
  - The LED will wink multiple patterns when more than one fault condition is active.

FAULT CONDITION PATTERNS:
1 Wink - RPDU output(s) are latched off due to over-current faults. Reset the Central Controller to restore operation.
2 Winks - Communication fault
3 Winks - Source voltage level is <9 VDC
4 Winks - Source voltage level is >16 VDC
5 Winks - Over temperature condition

Tech Specs	bluePRINT® Control System Remote Node
Input Voltage:	10-16Vdc (Negative Ground)
Maximum Total Current & Operating Temp:	50 Amps (-40° to 65°C), 30Amps (-40° to 85°C), 15Amps (-40° to 105°C)**
Outputs (Sum of ALL used Outputs Shall Not Exceed 50Amps)	4x 10Amp Solid State, Switched 6x 5Amp Solid State, Switched
IGN ON: Standby Current:	60mA
IGN OFF: Sleep Current:	0.34mA
Inputs:	4x Total 3x Active High/Low Inputs *1x Active high/Low Input w/ System Wake up
Reverse Polarity Protection:	Not Protected (Reverse Polarity will Destroy the Devices)
Transient Protection:	Protected
High Voltage Protection:	>16V; High Voltage Error Code Set
Low Voltage Protection:	<9V; Low Voltage Error Code Set
Dimensions:	6.0" x 3.4" x .8"
Weight, Boxed:	13.2 oz.
Weight, Device Only:	10.7 oz.
Valid Input Threshold High:	>8.0V
Valid Input Threshold Low:	<1.5V
Hermetically sealed providing protection in wet areas.	

*Input 1 can be used to sense ignition status for overall system operation

Multi-color lights should be driven by outputs within the same output group (Group 1: 1-5, Group 2: 6-10) to align timing.

By default even outputs flash alternating with odd outputs when enabled in software.

**Applies to high temperature rated product with black potting encapsulation. Under-hood mounting is application specific and should be verified not to exceed maximum temperature limits in the vehicle usage conditions. Maintain at least 24" from high heat sources such as engine and radiator.

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⚠ WARNING

- High current interconnects require careful termination with the proper equipment. **WARNING! Poor crimp quality can cause significant heat build-up and fire.** Follow connector manufacturer instructions to terminate properly.

- Remote Node can switch up to a **total maximum of 50Amps.** User must configure outputs to not exceed this total current. Individual output switches are rated up to 10Amps each for higher current loads, **but the total device current must not exceed 50Amps.** The software warns when these limits are exceeded and user must ensure that individual output limits and total device current limits are not exceeded in normal use.

- **Do not gang or parallel multiple outputs to drive a high current load.** Multiple 5Amp and 10Amp outputs must not be combined to achieve a higher current limit.

TERMINATION OPTION 1

Purchase accessory mating harness from SoundOff Signal

SoundOff P/N: ENGHNK02 (16pin Mating Harness – 18 inches)
ENGHNK04 (16pin Mating Harness – 15 foot)
ENGHNK03 (10 foot Harness Kit for Remote Node)

●	• Typically, a water tight butt-splice with glue is used to protect this termination and is required for exterior use.
Pros:	• No need to terminate at the connector pins • no need to purchase Molex crimper
Cons:	• Requires butt-splice or alternate connector • Requires heat shrink tubing with glue for exterior

Strip to this length
0.165" to 0.197"

0.006" to
0.026"

Insulation Crimp

(drawn to scale)

TERMINATION OPTION 2

Purchase individual connector components to terminate the wires at the connector.

Molex P/N: 19418-0030	**Molex P/N:** 19420-0001	**Molex P/N:** 19417-0119
MX150L™ 16 Circuit Sealed ● Receptacle for 14-16 AWG Wire	MX150L™ Female Terminal for 14-16 AWG Wire, Tin Plated	MX150L™ Socket Plug/Key (One plug required for each unused pin location to seal)

- MX150L Assembly Instructions: http://www.molex.com/pdm_docs/as/AS-19417-001.pdf
- Application Tooling Specification Sheet: http://www.molex.com/pdm_docs/ats/ATS-6381144HM.pdf
- Quality Crimping Handbook: http://www.molex.com/pdm_docs/ats/TM-638000029.pdf
- Actual terminal and housings may be different depending on application, wire type, etc.

- Hand Crimp Tool: **Molex P/N:** 63811-4400
- Manual Extraction Tool: **Molex P/N:** 63813-1500

●	• **WARNING! Wire diameter with insulation must be 0.113in to 0.139in (2.87mm-3.53mm) to properly seal** (such as SXL 16AWG)
Pros:	• Consistent wire colors, clean install without butt-splices
Cons:	• Need to purchase crimper and train personnel

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 www.soundoffsignal.com/tech-services/returns/.
If you have questions regarding this product, contact Technical Services, Monday - Friday, 8 a.m. to 5 p.m. ET at 1.800.338.7337 (press #4).
Questions or comments that do not require immediate attention may be emailed to techservices@soundoffsignal.com.
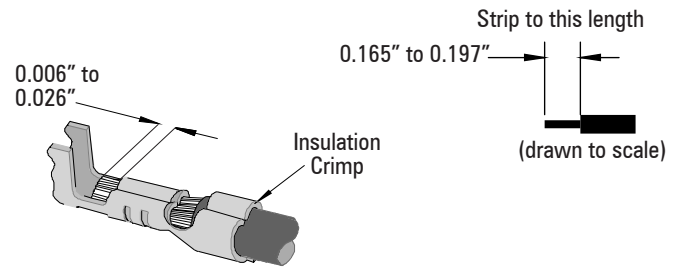
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REMOTE NODE
INSTALL TEMPLATE

(Ground)   (Power)

AUTOMOTIVE 50A MAX
FUSE OR BREAKER

Wire Color	Function		Function	Wire Color
_____	_____ 5A, Output 10, Pin 9	Pin 1, Output 9, 10A _____	_____
_____	_____ Input 1, Pin 10	Pin 2, Output 8, 5A _____	_____
_____	_____ Input 2, Pin 11	◇ Pin 3, Output 7, 10A _____	_____
_____	_____ Input 3, Pin 12	Pin 4, Output 6, 5A _____	_____
_____	_____ Input 4, Pin 13	Pin 5, Output 5, 5A _____	_____
_____	ID # _____ Module Select, Pin 14	Pin 6, Output 4, 10A _____	_____
_____	_____ DATA, Pin 15	Pin 7, Output 3, 5A _____	_____
_____	_____ 5A, Output 1, Pin 16	◇ Pin 8, Output 2, 10A _____	_____

◇ = Xenon inrush

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