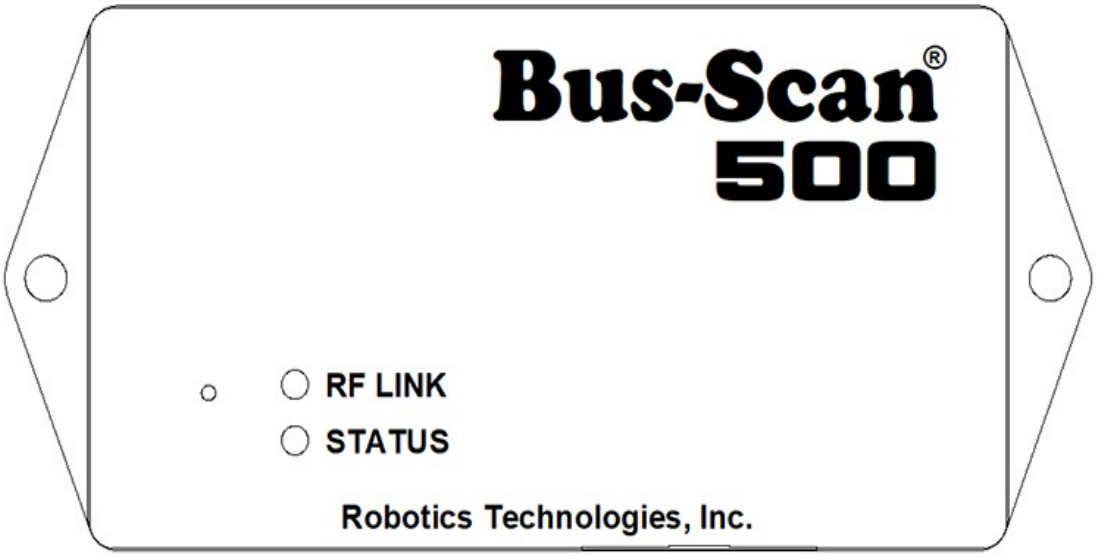

Bus-Scan® 500 RF

Installation and Operation Guide

800-995-6056
www.roboticstech.com

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1.0 Introduction

Before installing and using, please be sure to read this manual.

- This product is for vehicle interior use only.
- To prevent short-circuits or the risk of electric shock, do not install or use in damp or wet areas.
- In the event of any liquid or foreign object entering the unit, please disconnect the power immediately.
- This product is not user-serviceable. Please refer to a qualified technician for service.
- Specifications and features are subject to change without notice.

1.1 Installation Environment

- Requires 11-13.6V DC power supply. Please confirm the power source before powering.
- Select an appropriate location for installation: Dry, with adequate ventilation.

1.2 Packing List

Item	Quantity
Bus-Scan 500 RF Control Unit	1
Bus-Scan RF Remote Transmitter (includes battery)	1
12-Position Interface Cable	1
#8 x 3/8" sheet metal screws for mounting	4
Drilling templates for Control Unit & Transmitter	1 Each
This Manual	1

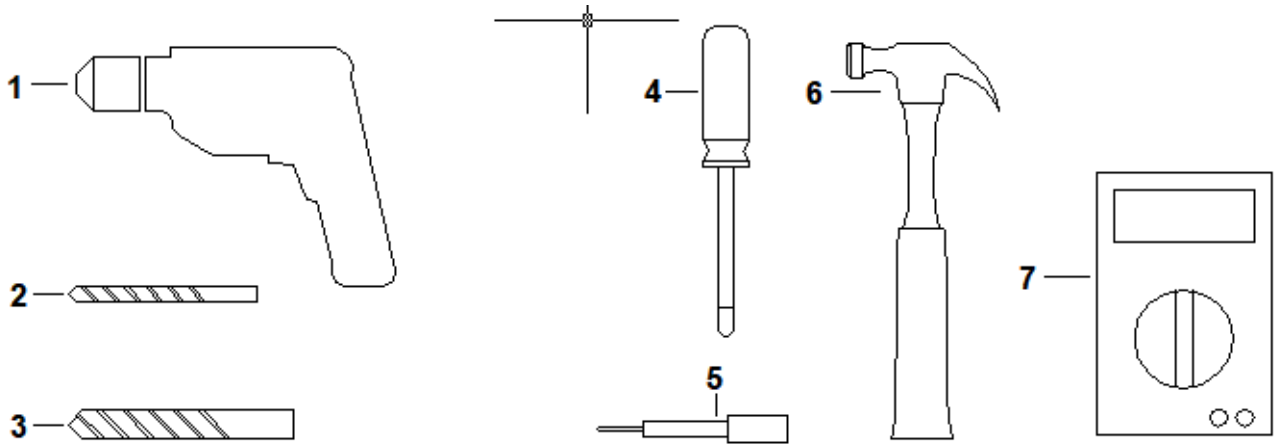
1.3 Product Overview

The **Bus-Scan 500 RF** is a child reminder system that complies with California SB1072 (The Paul Lee School Bus Safety Law). It is appropriate for all mobile environments, including school buses and passenger vans, when installed as designated herein. This RF (radio frequency) model incorporates our exclusive wireless-disarming feature, which obviates the need to run wires to the rear of the vehicle. Please refer to the appropriate sections of this manual for information about specific features and operations.

2.0 Operational Features

- Can auto-activate within five seconds of Ignition being turned on
- Can use an arming input (Parking Brake, etc.)
- Starts a warning beeper to alert the driver to begin a vehicle inspection
- Driver must proceed to the rear of the vehicle, and press the disarm button
- If any floor-level door is opened without disarming, the alarm will sound / light
- Driver has three minutes to deactivate the system, or the alarm will sound / light
- Interior lights automatically activate during inspection, and remain on for 1 minute
- Auto courtesy lights assist entering and exiting passengers
- Activating the flasher lights will inhibit alarming to accommodate special-needs riders
- The alarm can sound the vehicle horn, or can use an optional siren
- If the alarm has been activated, then the ignition must be recycled to clear the alarm, then the disarming procedure must be repeated.
- Horn will sound up to thirty minutes if the vehicle check is not performed
- Audible and Visual system status indications
- Pluggable harness for quick and easy wiring
- High-capacity Horn & Light relays are built in – external modules not required
- Uses relays with open contacts (not transistors) to prevent vehicle system interference

3.0 Required Tools



1	Electric Drill
2	1/8” Drill Bit
3	1/2” Drill Bit
4	Phillips Screw Driver
5	Center Punch
6	Hammer
7	Multi-meter

4.0 Mounting the Control Unit

1) Select a suitable location near the driver's compartment
2) Use the supplied template, center-punch the indicated mounting holes and drill
3) Mount the Bus-Scan 500 Control Unit with two of the #8 x 3/8" Sheet Metal Screws

5.0 Wiring the Control Unit

Refer to the following wiring diagrams to connect the **Bus-Scan 500** Wiring Harness. The harness comprises a 12-pin connector, fuses where appropriate, and wire of sufficient length for typical installations. If additional wire length is required, please make sure to observe standard wiring practices to ensure safe and proper operation.

For clarity, we have separated our wiring diagrams into sub-systems. We hope that providing you with multiple, task-oriented views can make the system more comprehensible (although all the diagrams can appear intimidating at first glance, you'll find that breaking it into tasks ultimately makes it easier).

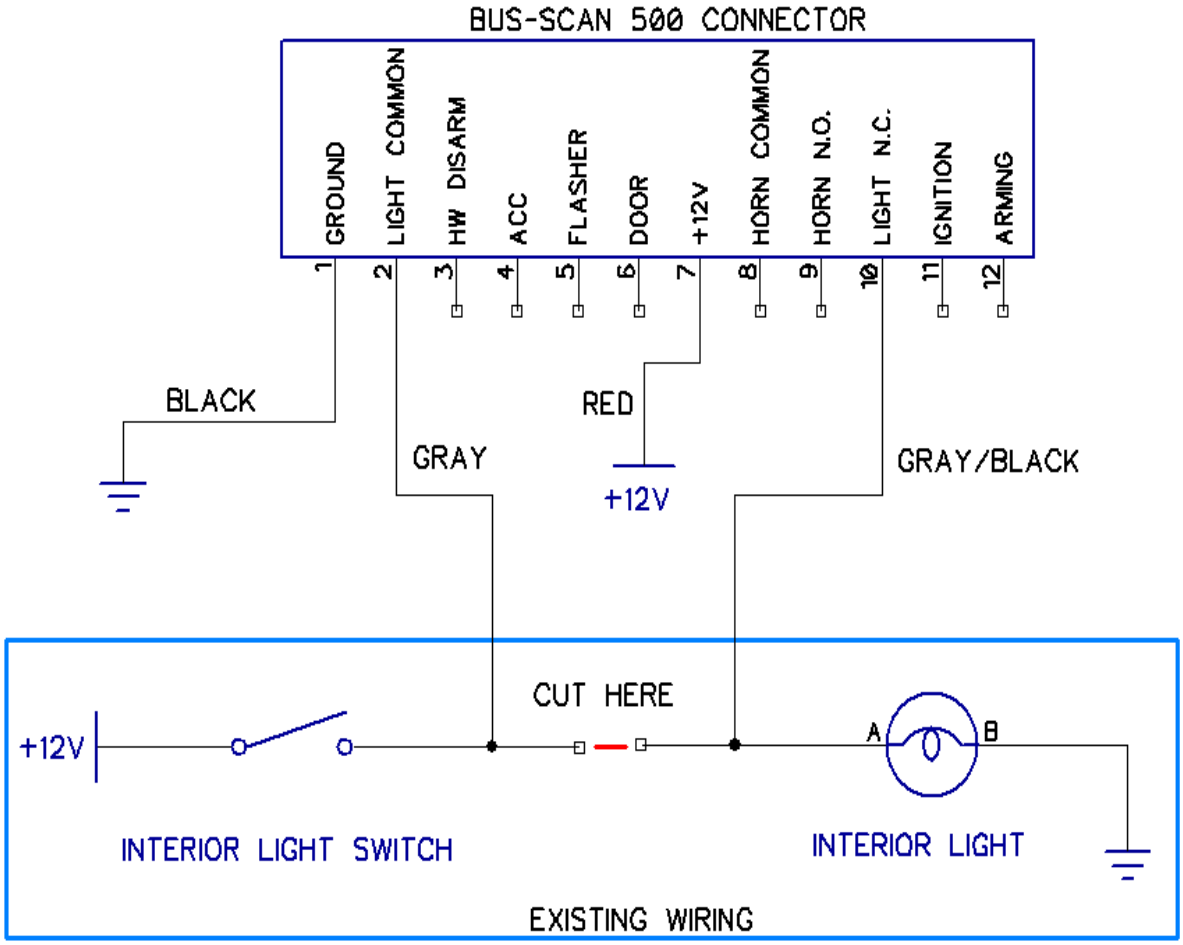
The first section is just an overview of the wiring harness—its colors and functions. Next, are wiring diagrams for the Horn, the Lights, and the system inputs.

5.1 Control Unit Harness Details

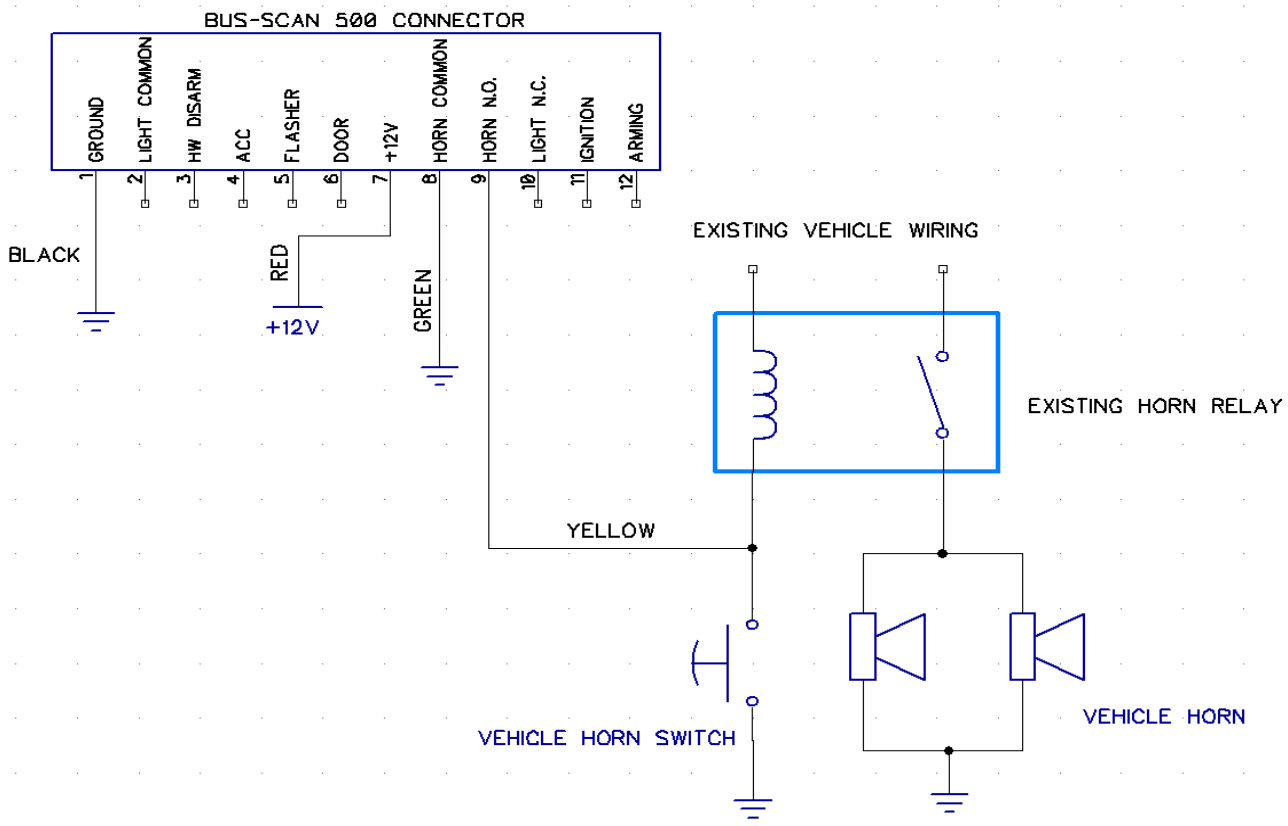
5.2 Harness Function Table

Wire Color	Function	Activates	Pin
BLACK	Ground	---	**1**
GRAY	Dome Lights Relay Common Contact	---	**2**
ORANGE (NEW)	**Neg Parking Brake Input (Ground when brake is released)**	@GND	**3**
WHITE (NEW)	**Pos Door Chain (+12V when door opened)**	@+12V	4
GREEN / BLACK	Flashers	@+12V	**5**
VIOLET	Neg Door Chain (Ground when door opened)	@GND	**6**
RED	+12V DC Constant	---	**7**
GREEN	Horn Relay Common Contact	---	**8**
YELLOW	Horn Relay Normally Open Contact	---	**9**
GRAY / BLACK	Dome Lights Relay Normally Closed Contact	---	**10**
BROWN	Ignition Switch (+12 when engine is running)	@+12V	**11**
BLUE	Pos Parking Brake Input (+12V when brake is released)	@+12V	**12**

5.3 Wiring the Vehicle Lights



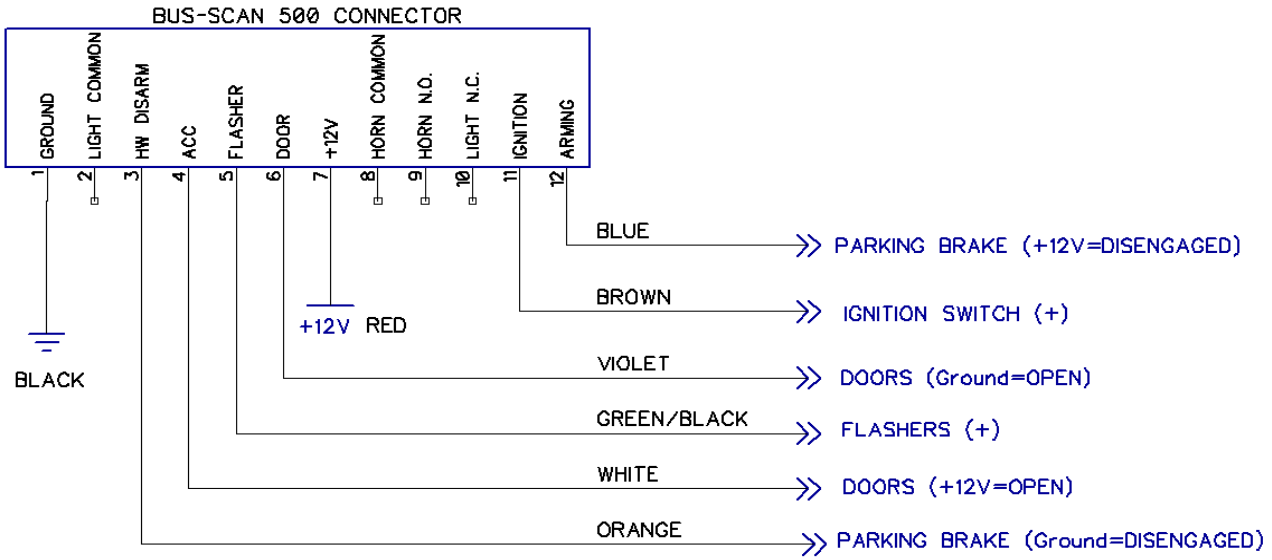
5.4 Wiring the Vehicle Horn



IMPORTANT: Never connect the Bus-Scan 500 Horn Relay output directly to the vehicle horn. Always connect to the COIL side of the existing vehicle horn relay. Failure to observe this practice can create a hazard and damage the Bus-Scan 500 system (as well as void the warranty)

If your vehicle does not have a Horn Relay, you can order one from us (order number 102893), or source your own.

5.6 Wiring the System Inputs



Input Type	Color	Notes
Parking Brake Use when released = +12V	Blue	Either input can be used. System will arm within 3 seconds after Brake is released. If you are not required (or choose not) to use the parking brake input, tie the BLUE wire to the BROWN (ignition) wire.
Parking Brake Use when released = Ground	**Orange (NEW)**	
Ignition Switch	Brown	"ON" Initializes the system. Cycling to "OFF" starts a reminder sequence that requires disarming (+12V activation). Required input.
Doors (Ground = Open)	Violet	Either input can be used (or both), depending on available signals on bus. At least one is required.
Doors (+12V = Open)	**White (NEW)**	
Flashers	Green/Black	When connected to Flashers, this input provides reminder sequence inhibition when aiding passengers on or off the vehicle. **Ignores flashing signals (up to 3-second interruptions), so can be connected directly to bulb voltage.** Required input.

5.7 Connect the Control Unit Harness

After the harness wiring has been completed, plug the connector into the mounted **Bus-Scan 500 RF** unit. Now it's time to pair and test the system.

6.0 Pair the Remote Transmitter with the Control Unit

1) Turn the ignition to the "ON" position to power up the Control unit. The system must be powered in order to pair with the Remote Transmitter.
2) Locate the Pairing Hole on the front of the Control Unit. It is just to the left of the RF Link light, and is 1/16" in diameter.
3) Insert a paper clip into the hole and press to activate Pairing Mode. The RF Link indicator light to indicate Pairing Mode.
4) Within 15 seconds, press the Remote Transmitter button to pair. The RF Link indicator will blink when the pairing is complete.
5) Press the Remote Transmitter button and watch for the RF Link indicator to blink, to confirm pairing. **NOTE**: If the Remote Transmitter button is not pushed within 15 seconds, the Control Unit will abandon pairing mode, and the RF Link indicator will stop flashing.
6) When you turn off the Ignition, the system should sound a reminder tone.
7) Wait 5 seconds, then press the Remote Transmitter button. The tone should stop, indicating that the system has successfully disarmed. *If the disarm button is pressed before 5 seconds, then the alarm will sound. This is a "anti-tamper" feature that prevents the bypassing of the system by tying the button down.*

7.0 Mount the Remote Transmitter

- Once you have confirmed pairing and proper operation, find a suitable location at the rearmost area of the vehicle.
- Use the provided template and a center punch to prepare for drilling.
- Use a 1/8" drill bit to create clearance holes for the remaining 2 #8 x 3/8" sheet metal screws.
- Mount the Remote Transmitter.

This completes the installation of the Bus-Scan® 500 RF

8.0 Technical Specifications

Bus-Scan 500 Control Unit	
Dimensions	Length: 4.25” Width: 2.25” Height: 1.50”
Enclosure Material	Flame Retardant ABS Plastic, UL 94-5VA
Electrical System	12 Volt DC Negative Ground. Fuse at 2.0 Amps
Horn Activation	Form A Contact, Fuse at 2.0 Amps
Light Activation	Form A Contact, Fuse at 2.0 Amps
RF Receiver	315 MHz ASK

Bus-Scan 500 Remote Transmitter	
Dimensions	Length: 4.25” Width: 2.375” Height: 1.0”
Enclosure Material	Flame Retardant ABS Plastic, UL 94-5VA
Battery	12 Volt Alkaline Battery MN21A, GP23A or Equivalent
RF Transmitter	315 MHz ASK

9.0 Warranty

Robotics Technologies, Inc. (RTI) warrants its products to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing at its own sole option any such defective products. To obtain service under this warranty you must obtain a Return Material Authorization (RMA) number from RTI. Products must be returned to RTI with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment that has been damaged by accident, negligence or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser. The Bus-Scan® Seat Check Reminder is not a security or detection device. It is used as a reminder for the driver to physically check seats. It is the responsibility of the customer to ensure secure mounting and the continued maintenance thereof. Customer will indemnify RTI and hold it harmless from all actions or litigation arising from misuse of or improper mounting of the Bus-Scan®. EXCEPT AS PROVIDED HEREIN RTI MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore the aforesaid limitations(s) or exclusion(s) may not apply to purchaser. EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL RTI BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, RTI is not liable for any costs such as loss of profits or revenue, loss of service, loss of equipment, costs of substitutes, and claims by third parties or otherwise. This warranty gives you specific legal rights and you may also have other rights that vary from state to state.