



An ISO 9001:2008 Registered Company

## Guardian Universal Personal Mobility Lift Interlock GRD401-AB

### Installation Instructions

**Note: For proper installation, you must have a shop manual or wiring diagram for the specific make, model and year of the vehicle on which the installation is to occur. You must properly identify the following circuits:**

1. Parking brake switch and circuit. The parking brake switch **must** provide a ground signal only when the parking brake is applied.
2. Vehicle start/crank circuit. You must verify, with an ammeter, that this circuit does not draw more than 9 Amps while cranking the engine. If it draws more than 9 Amps, an external relay must be added – See Addendum.
3. A fuse protected 12V ignition source. This source must provide voltage in run **and** start key positions only.

If you cannot locate these circuits, or if they do not meet the criteria outlined above, do not attempt installation. If you have identified the proper circuits and they do meet the above criteria, proceed with the installation as outlined below.

**GUARDIAN MODULE** - Remove the lower dash panel below the steering column. The Guardian Module should be positioned behind the metal knee bolster bracket below the steering column. It can be secured using self tapping screws, adhesive foam tape, or wire ties. Do not secure the module until all harnesses are installed and proper lift operation has been verified.

**LED DISPLAY PANEL** – This harness can be identified by the blue tape near the 6-pin connector. Locate a suitable position on the dashboard, within clear view of the driver, for the mounting of the LED Display Panel. The length of the display harness is 40". This is the maximum distance the display can be from the Guardian module. Drill a 3/4" hole in the dashboard where you wish the center of the display to be. Snap the blue taped end of the LED display harness into the Guardian Module in the connector labeled in blue "Display". Run the other end of the harness under the dash and out through the 3/4" hole. Snap the other end of the LED display harness into the LED Display Panel. Ensure panel is level, and secure using the supplied screws.



**LIFT HARNESS** – This harness can be identified by the green tape near the 6-pin connector. Attach the appropriate wheelchair lift adapter to the lift harness, then attach adapter to the wheelchair lift. Run the lift harness from the wheelchair lift to the Guardian Module. Finally, snap the green taped end of the Lift Harness into the Guardian connector labeled in green “Lift”.



**Before continuing installation, the following check must be performed:**

Verify that the vehicle ignition is off and the lift is fully stowed for at least 5 minutes. This will ensure the Guardian module is in sleep mode. Attempt to deploy the wheelchair lift. Both the red and green indicators on the LED Display Panel should briefly illuminate as a prove-out after the module wakes up. If they do not, check to make sure each harness is connected to the proper Guardian Module connector as outlined in the above steps. Only proceed to the next step if the indicators illuminate. Otherwise, damage can occur to the module.



**VEHICLE 1 HARNESS** – This harness can be identified by the orange tape near the 6-pin connector. Locate the parking brake switch circuit on the vehicle. Verify that it provides a ground signal only when the parking brake is applied. In a convenient location, cut this circuit. Strip back about ½” of the insulation on each cut side. You will connect the brown wire on the vehicle 1 harness in series with this circuit. The arrow on this harness must point towards the parking brake switch. If this harness is installed backwards, the unit will not function properly. These connections must be made using solder and the supplied heat shrink tubing. The heat shrink tubing can be cut to 1” lengths for this purpose. **Do not use butt connectors for these connections! The use of butt connectors in this circuit will void the InterMotive warranty.**



Finally, snap the vehicle 1 Harness into the Guardian Module connector labeled in orange “Vehicle 1”.

**VEHICLE 2 HARNESS** – Attach the red wire to a fuse protected ignition 12V source. This type of circuit can typically be located near the fuse block. It is imperative that this circuit provides 12V in **both** run and start and **only** run and start key positions, or improper operation will occur. Ensure that you solder and heat shrink this connection. Locate the vehicle start/crank circuit. This is typically found near the ignition switch. In a convenient location, cut this circuit. Attach an ammeter in series with this cut circuit and verify that the current draw does not exceed 9 amps while cranking the engine or damage to the Guardian module can occur. Attach the yellow wire to the cut wire coming from the ignition switch. Attach the blue wire to the cut wire going to the starter relay. Both connections must be made using solder and the supplied heat shrink tubing. **Do not use butt connectors for these connections! The use of butt connectors in these circuits will void the InterMotive warranty.**

Finally, snap the vehicle 2 Harness into the Guardian Module connector labeled in white “Vehicle 2”.



**Secure the Guardian Module in its final location and test for proper operation. (See Post Installation Check List).**

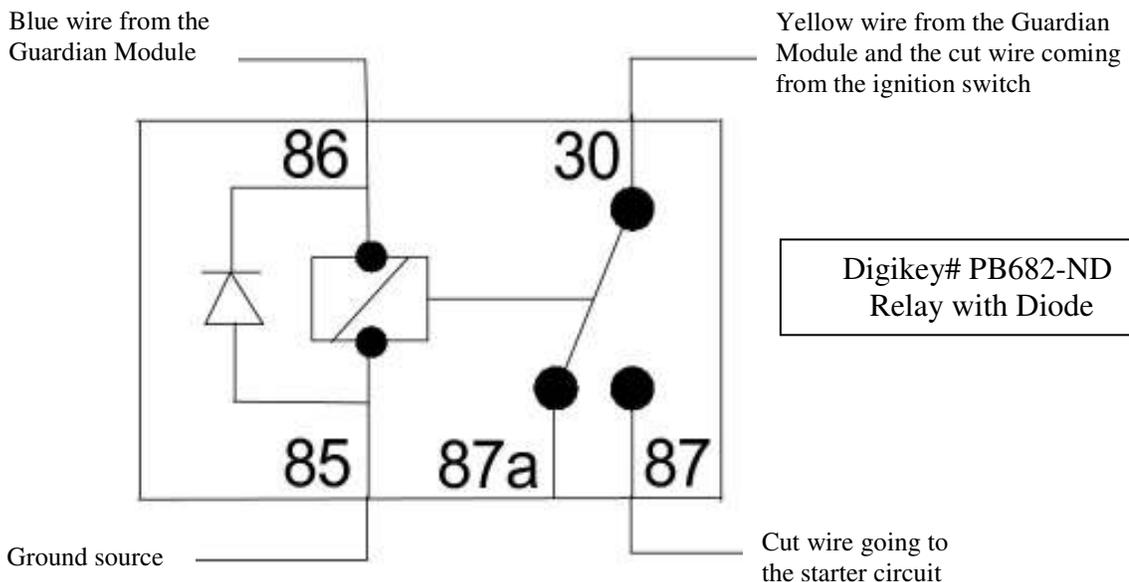
## Addendum

### Guardian Universal Personal Mobility Lift Interlock GRD401-A / 402-A / 701-A / 702-A

#### Start/Crank Relay Installation

**(Only install if Start/Crank circuit draws more than 9 amps.)  
(Relay with Diode not included with Interlock kit.)**

1. Locate the vehicle start/crank circuit. This is typically found near the ignition switch. In a convenient location, cut this circuit.
2. Attach an ammeter in series with this cut circuit and verify that the current draw exceeds 9 amps while cranking the engine.
3. Attach the yellow wire from the Guardian module together with the cut wire coming from the ignition switch and connect to Pin #30 of the Start/Crank Relay.
4. Attach the cut wire going to the starter to Pin #87 of the Start/Crank Relay.
5. Attach the blue wire from the Guardian module to Pin #86 of the Start/Crank Relay.
6. Attach a ground source wire to Pin #85 of the Start/Crank Relay.





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## Guardian Universal Personal Mobility Lift Interlock GRD401-AB

### Post Installation Check List

**The following checks must be made after installation of the InterMotive Guardian GRD401 to ensure correct and safe operation of the lift. If any of the checks do not pass, do not deliver the vehicle. Recheck all connections as per the installation instructions.**

1. Turn the ignition on. Apply the parking brake. Attempt to deploy the lift. The lift must not deploy. Verify that the LED's prove out. After prove out, only the two lower LED's should remain illuminated. These LED's are backlit icons that will be illuminated anytime the module is not in sleep mode.
2. Turn off the ignition. Release the parking brake. Attempt to deploy the lift. The lift must not deploy.
3. With the ignition still off, apply the parking brake. The green lift power LED should illuminate. Attempt to deploy the lift. The lift should now deploy.
4. With the lift deployed, the red lift-not-stowed LED will illuminate. Attempt to start the engine. The engine must not crank.
5. Stow the lift. The red LED should turn off. Attempt to start the engine. The engine should now start and the green LED should now turn off. Attempt to deploy the lift with the engine running. The lift must not deploy.
6. Turn off the ignition. Verify that the module goes into sleep mode after approximately five minutes. The module is in sleep mode when all LED's on the display are not illuminated.
7. Attempt to deploy the lift. The module should prove out all LED's and the green lift power LED should remain illuminated. The lift should now deploy.
8. Stow the lift. Installation is complete.



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## **Guardian Universal Personal Mobility Lift Interlock GRD401-AB**

### **Operating Instructions**

The Guardian is a microprocessor driven system for controlling wheelchair lift operation. Lift operation will only be allowed when all of the following conditions are met:

1. The vehicle ignition power is off.
2. The parking brake is applied.
3. The lift deploy switch is activated.

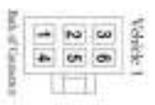
The Guardian also will not allow the engine to be started if the lift is not fully stowed.

When the lift deploy switch is activated, the Guardian LED panel will prove out by illuminating the red and green indicators briefly. After prove out, only the two lower LED's should remain illuminated. These LED's are backlit icons that will be illuminated anytime the module is not in "sleep" mode. When the wheelchair lift is stowed and ignition power is not present for 5 minutes, the Guardian will enter a low current "sleep" mode of operation. To wake up from "sleep" mode, the ignition must be turned on or the lift deploy switch must be activated. After prove out, the operation of the indicators is as follows:

- Lift Power – Illuminates in green if power is available to the lift. This means that all conditions for lift operation have been met (see above).
- Lift Not Stowed – Illuminates in red when the wheelchair lift is not stowed. If illuminated, the engine will not be allowed to start.

The indicators can also be used for diagnostic purposes. For example, if the Lift Not Stowed icon is illuminated when the lift is stowed, the driver will not be able to start the vehicle. This means that the Guardian detects that the lift is not stowed. Thus, a technician should inspect the lift stowed switch and its circuit for proper operation.

A B C D E F G H I J K L M N O P Q R S T U



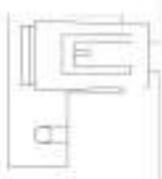
PRODUCT: **Guardian - Universal**

DESIGNED BY: Ed Protokopik	DATE DRAWN: 6/19/05	BRIDGE: Hacker	CHECK BY: Ed Protokopik	PART NO: GRD0401-AB, AG, AR	DATE CHECKED: 11/18/05
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REVISIONS	
DATE	CHANGE



- 1. GREEN - Vehicle security signal to Braun pin # 6
- 2. WHITE - Wake-up signal to Braun pin # 3
- 3. GREEN - Not used
- 4. BR. / YCK - Ground to Braun pin # 4
- 5. PWR / SWN - Left network signal to Braun pin # 9
- 6. RED - Battery voltage to Braun pin # 3



7.5 AMP FUSE



PRODUCT: **Braun Personal Lift Adapter**

DRAWN BY:	Braun	PART NO.:	GRD1-AB
DATE DRAWN:	Hodges	CHECK BY:	Ed Prokopiuk
11/23/05			DATE ORDERED:

A B C D E F G H I J K L M N O P Q R S T U

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15