

# PRODIGY D

# Electronic Brake Control with EDGE<sup>™</sup>

For 2, 4, 6 and 8 brake (or 1-4 axles) applications

# **READ THIS FIRST:**

Read and follow all instructions carefully before installing or operating the PRODIGY iD. Keep these instructions with the Brake Control for future Reference.

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#### **Important Facts to Remember**

- 1. **WARNING** The PRODIGY iD may be operated with reduced performance if the Dash Module is removed or disconnected while the trailer is in use.
- 2. Do not mount or activate RF generating items (such as two-way radios) near (less than 12in to the Dash Module or Power Module).
- **3.** The PRODIGY iD employs an internal sensor. It senses deceleration and generates an output that is based on deceleration, thus the term "Proportional Braking".
- **4.** The PRODIGY iD will "HOLD" your trailer with 25% of power setting while you are at a standstill with brake pedal applied for longer than 5-7 seconds.
- **5.** The PRODIGY iD will brake proportionally in reverse. It will apply the appropriate brake voltage based on deceleration.
- 6. **WARNING** The Gross Combined Weight Rating (GCWR) must never exceed the vehicle manufacturers' recommendation.
- **7. WARNING** Follow all installation and mounting instructions to allow the inertial sensor to operate properly.



# Determine Mounting Location

# **Dash Module and Display Assembly**

**WARNING** The Prodigy iD Dash Module and Display must be securely mounted to the vehicle. Failure to install the Dash Module and Display within the specified constraints may cause impaired performance.

**WARNING** To prevent SERIOUS INJURY, DEATH or DAMAGE to vehicle, make sure area behind the dash panel is clear before drilling. Minimum required space for installation is approximately 2.32in (59mm) tall, by 2.17in (55mm) wide, and 2.68in (68mm) deep.

**WARNING** Correct orientation and mounting of the Dash Control and Display is required for proper operation. The Dash Control and Display must be securely mounted to a solid surface.

**CAUTION** Do not remove red cap until after the Dash Module has been mounted.

**NOTE:** The Dash Module connects to the Power Module with the included harness. Consider the location of both modules relative to each other and verify harness routing before drilling any holes.

# **Dash Module Mounting Orientation Considerations**

The Prodigy iD must be parallel to direction of travel (±20 degrees), see below.

**Top View** 

THIS SIDE U

Front of the Prodigy iD must be horizontal (±20 degrees), see below.



The Prodigy iD can be mounted from 0 to 360 degrees, in the direction of travel, see below.

Side View



**Direction of Travel** 

Direction of Travel

# Automatic Leveling of the Sensor

The Prodigy iD will automatically acquire the proper level setting. It will also automatically adjust as you travel up or down hills.

Determine a suitable mounting location for the Dash Module. The Dash Module can mount in vehicle panels up to 0.17 in (5.0 mm) thick. It must be within a maximum angle relative to the forward direction of vehicle travel for the inertia sensor to work correctly and for the driver to access the Manual Override and Dash Module (manual braking).

For easy of installation, temporarily remove panel for drilling and mounting. Place Drill Template on panel at desired Dash Module mounting location and mark each drill point with the center punch.

**A CAUTION** To ensure alignment of the display, confirm horizontal

**center line alignment, then drill holes** sized as indicated, and in the alphabetical order shown.

Drill Template may optionally be removed from panel prior to drilling if holes are marked properly. A scale copy of the Drill Template is included in this booklet as a backup and for reference.



#### **Dash Module Assembly**

**IMPORTANT** Using Mounting Collar assembly, ensure fit and clearance with drilled panel holes. Trim as necessary to ensure perimeter of Mounting Collar can sit flush to mounting panel before continuing.

Verify that Mounting Collar has its aluminum "Clamp Wings" locked in the inward position and insert into the drilled hole with Indicator Arrow on the outside point up to the "12 o'clock position"



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With Mounting Collar inserted in panel, free the Clamp Wings by loosening (counter-clockwise) screws one-half turn with the 1.5mm hex key. Once free, clamp the Mounting Collar to the panel by hand tightening screws clockwise. This will clamp the Mounting Collar to the panel. Ensure the assembly is secured to the panel and that both Clamp Wings are hand tight.



**WARNING** Do not over tighten. Failure to properly tighten the Mounting Collar screws could cause improper/reduced performance, excessive road noise, and even damage the device.

**CAUTION** Do not remove red cap until after Dash Module is firmly secured to the panel.

**WARNING** Verify assembly orientation.

Snap Rear Switch Assembly into Mounting Collar.





Insert and tighten Screws to secure the Dash Module to the Mounting Collar. Verify that screw heads are flush and entire assembly is secured to the dashboard.

**WARNING** Hand tighten only. Verify assembly is firmly secured to panel and in final mounting location.



Align Knob Base as shown with Indicator Arrow pointing up in the "12 o'clock" position and press straight inward until all three snap fits engage. When properly assembled, Knob Base should be able to turn evenly with a spring return. Remove the red anti-static cap.

**A CAUTION** DO NOT TOUCH THE ELECTRICAL CONTACTS.



#### Vehicle Wiring

**WARNING** Inadequate grounding may cause intermittent braking or lack sufficient voltage to trailer brakes and may result in accidents.

- The WHITE wire must be connected to a suitable ground location. The negative terminal of the battery is a suitable ground location in the absense of a Trailer Tow Package connection.
- 2. Connect BLACK (+) wire through an automatic reset circuit breaker 20 amp for 1-2axles, 30 amp for 3-4 axles to the POSITVE (+) terminal of the battery. The BLACK wire is the power supply line to the brake control.
- **3.** The **RED** (stop light) wire must be connected to the vehicle braking circuit.

**WARNING** Do not disrupt the vehicle braking circuit. If you are unsure of which wire to use, contact local vehicle dealer, Tekonsha dealer or technical support.

- **4.** The **BLUE** (brake output) wire must be connected to the trailer connector's brake wire.
- 5. Connect the 4-Pin Universal Wire Harness to the Power Module.
- 6. Turn on the Vehicle's Ignition Switch.

 Rotate the Manual Override to verify that the Dash Module and Display are illuminated. Display will Flash n.c if the trailer is not connected, or .c when the trailer is connected.

# **Typical Wiring Diagram**



#### **Power Module Wiring** vehicle will reduce the life of the connector. 5. Use the Universal Harness and splice the wires into the function **OPTION 1:** Universal Wire Harness Installation wires as shown on the Wiring Diagram. **WARNING** Reversing **BLACK** and **WHITE** wires, or improper Wiring Legend wiring will damage or destroy the brake control. **BLACK** Wire (Positive Battery, 12VDC) Be sure to solidly connect all four wires or brake control will not WHITE Wire (Negative Battery, Chassis Ground) function properly. **RED** Wire (cold side of stoplight switch) Use of proper gauge wire when installing the brake control is BLUE Wire (brake output to trailer) **CRITICAL**; smaller gauge wire may result in less than efficient braking. Minimum wire gauges are as follows: **OPTION 2**: Plug & Play Wire Harness (Sold Separately) • 1-2 axle applications - 14 AWG. If your vehicle comes equipped with a factory tow package, brake • 3-4 axle applications - 12 AWG. control function wires with a connector may exist under the 1. The brake control must be installed with a 12 volt negative ground vehicle dash. Consult the vehicle manual or call for the location of system. the harness. A vehicle specific Plug & Play harness may be purchased 2. Soldering is recommended or crimp-on butt connectors are a separately. For easy installation simply plug the vehicle specific suitable substitution. connector into the factory tow package harness and plug the other 3. Route all wires as far from the radio antenna as possible to reduce end directly into the Plug & Play Harness on the brake control. AM interference. 4. Collection of water inside the trailer connector mounted on the tow

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# Tekonsha Edge™ Mobile App

▲ WARNING DO NOT USE TEKONSHA EDGE<sup>™</sup> APP WHILE DRIVING.

# ONCE YOUR PRODUCT IS INSTALLED:



# **Operating Instructions**

# Manual Override

The Manual Override is the rotary control knob. It allows the user to apply the trailer brakes to the maximum power set by the user with the Power Output setting.

When the Manual Override is rotated clockwise, the Brake Output Voltage will override the proportional value. The Brake Output Voltage will increase, starting at **0**,**0** and go to the Maximum value as set by the Power Control setting.

# Menu Button

The Menu Button is used to enter the Programming Menu and confirm settings. When the Menu Button is held for longer than 5 seconds, the display will change to the Programming Menu. Rotating the Manual Override is used to change Menu selections and settings.



# Display Readings after Connecting the PRODIGY iD

Once the PRODIGY iD Dash Module and Display Assembly have been installed correctly and power is applied, the display will indicate connectivity.

 Initial Power to the Power Module with the trailer connected. Once the units and trailer are connected, the display will indicate a connection, .c..





**NOTE:** The center dot is for power ON. The 2nd dot is for Boost ON. This convention is used throughout these instructions.

 If flashing n.c or n.c. for 15 seconds, then changes to . (dot), check all connections to the trailer (see Troubleshooting Chart).



• Manual Override activated (with trailer), **5.5** denotes a hypothetical power output.



The Power Output value is set by rotating the Manual Power Knob. The range is a % from 0.0 to 10, or 100%. This is an indication of the Brake Output Voltage being supplied to the brakes.

# **Power Saving Mode**

• With no motion or braking activity for at least 15 minutes, the Prodigy iD will enter Power Saving Mode, the Display will automatically return to normal operation with any activity.



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Pr	ogra	mming Menu/Sub Menu Display Setting Options
М	Ρ٥	Power Output
a	Ьо	Boost Setting <b>b.</b> to <b>b.3</b>
n	ЪΓ	Brake Controller Type P.r or E.r
	d۵	Display Brightness L. L. to L. 3 M
M	ΕH	Electric / Hydraulic E. or E.H 🖁
n	'nΕ	Reverse Mode
u	28	Passcode

# How to Navigate the Programming Menu

- 1. Long press (5 Sec) on the Menu Button to enter the Menu.
- 2. Rotate the Manual Control to change the Menu selection.
- 3. Short press (1 Sec) on the Menu Button to enter Sub Menu.
- 4. Rotate the Manual Control to change the values.
- **5.** Short press on the Menu Button to confirm the value.
- 6. Value selected will be shown on the display.
- **7.** Long press on the Menu Button to exit Menu or wait 2 seconds for selection to update and go back to Main Menu.





# **Power Output**

The Power Output setting menu allows the user to configure the maximum output power that can be delivered to the trailer's brakes. The maximum brake output is limited by the Power Output setting. The Power Output setting range will be from 0.0 to 10 (100%), in the increment of 0.5. Refer to How to Navigate the Programing Menu or **Edge**<sup>™</sup> App to change.



#### **Adjusting Power Output**

Once you have properly mounted the PRODIGY iD and connected the Power Module's electrical wiring harness to the vehicle, connect the trailer's electrical connector to the tow vehicle. The following illustration should be on the display.

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- **1.** Set the Power Output to **5.0**.
- 2. With the engine running, fully rotate the Manual Override and verify that the display is  $\mathbf{5.0}$ .
- 3. NOTE: Always warm trailer brakes before setting the Power Output. To warm trailer brakes, drive a short distance ¼ mile (0.4 km) at about 45 mph (70 kph) applying the Manual Override at a low setting to allow the trailer brakes to engage at a low level.
- 4. Drive tow vehicle and trailer on a dry level paved surface at 25 mph (40 kph) and fully apply the Manual Override.
  - $\square$  If trailer brakes lock up:
  - Decrease Power Output
  - ☑ If braking was not sufficient:
  - Increase Power Output
- 5. Repeat Step 4 until power has been set to a point just below wheel lock up or at a force sufficient to achieve maximum braking power.
- 6. Using the brake pedal, make a few low speed stops to check the power setting. Trailer braking is initiated and terminated via a signal from the stop lights.

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Boost

- **WARNING** To prevent SERIOUS INJURY or DEATH: • NEVER use the Boost feature to compensate for a potential
- problem with your trailer brakes. Have your trailer brakes adjusted or repaired immediately.
- ALWAYS select your Boost setting based on your towing situation, driving preference and condition of your trailer brakes.
- DO NOT use Boost during icy road conditions.
- Boost is disabled in Timer mode.

Boost may be adjusted for individual drivers' preference or changing road conditions. The Boost control is located in the menu as **b.o**.

The Boost setting is designed to allow a more aggressive setting for you trailer brakes and has four (4) levels: **b**. , **b**.  $\downarrow$  , **b**. 2 , and **b.3**. Each Boost setting level increases the sensitivity of the Brake Control Unit's inertial sensor, enhancing the participation of the trailer brakes during a braking event.

# **Boost Menu**

The Boost setting menu allows the user to configure the boost level that will provide an increased deceleration. The Boost levels are Boost "OFF" **b**. , Level-1 **b**. **i** , Level-2 **b**. **2** and Level-3 **b**. **3** .



Refer to How to Navigate the Programing Menu or Edge<sup>™</sup> App to change.



# Brake Controller Type

Controller type may be set for individual drivers' preference. The brake control type is located in the menu as b r.

#### **Proportional Braking**

**P.r** provides for a Brake Output Voltage that is proportional to the deceleration rate of the tow vehicle and trailer.

#### Timer mode

**c**. provides for a Brake Output voltage that increases voltage over time. The ramp time starts when the brake pedal is depressed. Ramp time varies from 1-4 seconds, and maximum power output will vary with the Power Output setting. Boost is disabled in Timer mode.



Refer to How to Navigate the Programing Menu or **Edge™** App to change.

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Display Brightness

The display brightness setting menu allows the user to control the brightness of the LED display. The display brightness is located in the menu as  $\mathbf{d} \mathbf{b}$ .

The brightness can be controlled in 3 Levels L. I to L.3. The display brightness levels are (L. I=Dim), (L.2=Normal) and (L.3=High Brightness).



Refer to How to Navigate the Programing Menu or **Edge™** App to change.

#### Electric or Hydraulic Mode

The Electric/Hydraulic mode setting allows the user to select the electric (E) or hydraulic (E/H) mode of operation for the trailer that is being used. The mode setting is located in the menu as  $\begin{bmatrix} E \\ H \end{bmatrix}$ .

**NOTE:** This refers to the specific type of brakes that are installed on the trailer that is being used. Electric Brakes are the most common, but some larger trailers use Hydraulic disk or drum bakes that are controlled by an Electric Motor and Hydraulic Pump. This type of braking system is referred to as Electric over Hydraulic brake system.





#### Passcode Clear

This code is set through the **EDGE™** App for secured Bluetooth communication between the App and the PRODIGY iD. The Passcode setting is located in the menu as **P R**.



#### To clear the Passcode

The user has the option to clear the 6-digit passcode stored in the brake controller module.

- Exit the **Edge™** App for either Android, or iPhone.
- Follow the Menu navigation to Passcode Menu  $\mathbf{PR}$  .

- With the Manual Override, select either **P.S** to Set, (no Action Needed) or **P.C** to Clear.
- When the passcode clear option is selected, the Display will rapidly flash **P.C** for 4 seconds.
- If the passcode was successfully cleared, the display will show  $P_{\cdot,c}$  for 2 seconds then change to  $P_{\cdot,R}$ .
- To enter new passcode, start the **Edge™** App and follow the instructions to connect.
- If the passcode did not clear, the display will flash P.E for 2 seconds. Ensure the Edge<sup>™</sup> App is closed and repeat steps.

#### Refer to Edge<sup>™</sup> App for Additional Features

• Refer to page 18en for Tekonsha **Edge™** Mobile App.

Display	<b>Probable Cause</b>	Solution
Blank Display Screen is blank	Control is in Power Saving Mode, (See page 21en).     Loss of connection between Power Module and Dash Module.     Loss of power to Power Module.     Loss of ground to Power Module.     Vehicle battery input exceeds 17.0V.	<ul> <li>Depress brake pedal or manual override.</li> <li>Verify connection from power module to dash module.</li> <li>Verify connection to Power Module &amp; vehicle .</li> <li>Verify battery voltage on black wire (12-14 volts).</li> <li>Verify ground on white wire.</li> </ul>
Trailer Disconnected Flashes for 15 sec. With trailer connected	<ul> <li>Trailer is disconnected from tow vehicle.</li> <li>Trailer connector is dirty, corroded or bent/mis-aligned terminals.</li> <li>Trailer or tow vehicle connector not wired correctly.</li> <li>Open on electric brake wire (broken or disconnected wire).</li> <li>Loss of ground to brake magnets (broken or disconnected wire).</li> </ul>	<ul> <li>Connect trailer.</li> <li>Check, clean and/or repair trailer connectors as needed.</li> <li>Correct trailer or tow vehicle connector wiring.</li> <li>Repair/replace electric brake wire as needed.</li> <li>Repair ground to brake magnets as needed.</li> </ul>
Power ON, Boost OFF, Trailer Disconnected	Normal Operation: Power to Prodigy iD, Boost is OFF and no trailer connected.	No action required.

Open Ground Flashes 2 times	Power Module loses connection to vehicle battery ground while Trailer	Check connection to ground on
Electrical Overload Flashes 2 time per sec.	is connected. • Defective Brake Magnet. • Intermittent short on electric brake wire or bare wire. • Total Brake Current exceeds 4-Axle Load. • Thermal Overload - Reduced Braking Power.	<ul> <li>Locate and replace defective Brake Magnet.</li> <li>Locate and repair fauly brake wire.</li> <li>Decrease electrical load.</li> <li>Thermal Overload - Reduced Braking Power.</li> </ul>
Short Circuit Flashes 2 times per sec.	<ul> <li>Power Module detects brake wire short to ground.</li> <li>Use of some test lights, or non-Te- konsha testers can cause this.</li> <li>Short in 7-way between Brake Output and other terminals.</li> <li>Electric brake wire on tow vehicle or trailer is shorted out.</li> </ul>	<ul> <li>Use Tekonsha approved test ligh or tester.</li> <li>Inspect and repair trailer connector, if needed.</li> <li>Inspect and repair/replace electr brake wire.</li> </ul>

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Troubleshooting Chart (continued)			
Display	Probable Cause	Solution	
Power inter- ruption while brake pedal is depressed. Flashes for 15 sec.	<ul> <li>Manual Overide or brake pedal applied while connecting to power.</li> <li>Manual Override or Brake Pedal activation within 5 seconds of initial Power applied to Power Module.</li> <li>Poor connection to battery power.</li> <li>Red and Black wires reversed.</li> </ul>	<ul> <li>Unplug power module from vehicle. Veryify manual override or brake pedal not applied for 10 seconds after reconnecting to power.</li> <li>Verify connection to battery power.</li> <li>Verify that red and black wires are connected correctly</li> </ul>	
No Braking, Flashes continuously	Power Control set to zero.	Increase Power Setting.	
Passcode Cleared Flashes for 4 sec.	Normal Operation: • P.C Flashes during successful clear operation.	No action required.	
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Troubleshooting Chart (continued)			
Display	Probable Cause	Solution	
Communication Error between Power Module and Dash Module. Flashes for 15 sec.	<ul> <li>Communication Failure between Power Module and Dash Module.</li> <li>Controller type has defaulted to Timer.</li> <li>Display may be blank.</li> <li>Partial or complete loss of Manual Override braking.</li> </ul>	Check Dash Module harness for connection and/or damage.	
Passcode Error Flashes for 5 sec.	<ul> <li>Failed to clear 6 digit Passcode.</li> <li>EDGE<sup>™</sup> App was not closed prior to Passcode Clear.</li> </ul>	Close EDGE <sup>™</sup> App before passcode clear.	
(SPI Buss Corruption) Flashes continously	Internal Error with the Prodigy iD.	Contact Technical Support.	
(Manual Override) Flashes continously	Internal Error with the Prodigy iD.	Contact Technical Support.	

# Appendix A: Trailer Brake Adjustment

To achieve maximum performance, Trailer Brakes must be adjusted after the first 200 miles, (320 km) of operation. And, when the brake shoes and drums have "seated" at 3,000 miles (4,800 km) intervals, or as use and performance requires. The brakes should be adjusted in the following manner:

- Jack up trailer and secure on adequate capacity jack stands. Follow trailer manufactures recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.
- **WARNING** NEVER lift or support your trailer on any part of the axle or the suspension system.
- **2.** Remove the adjusting hole cover from the adjusting slot on the bottom of the brake backing plate.
- **3.** With a screwdriver or standard adjusting tool, rotate the star wheel of the adjuster assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn.

- **NOTE:** With drop spindle axles, a modified adjusting tool with about an 80 degree angle should be used.
- **4.** Then rotate the star wheel in the opposite direction until the wheel turns freely with a slight lining drag.
- **5.** Replace the adjusting hole cover and lower the wheel to the ground.
- **6.** Repeat the above procedure on all brakes.

**WARNING** To prevent SERIOUS INJURY or DEATH:

- BEFORE getting under the trailer, ALWAYS block the trailer tires and use jack stands that are properly placed on firm ground and have sufficient capacity for your trailer. DO NOT lift or place supports on any part of the suspension system.
- ALWAYS follow your trailer manufacture's recommendations for lifting and supporting the unit.

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