PREDATOR DX2

Electronic Brake Controller

Installation and Operating instructions

For trailers with 2 or 4 electric brakes and vehicles with 12-volt negative ground systems only.

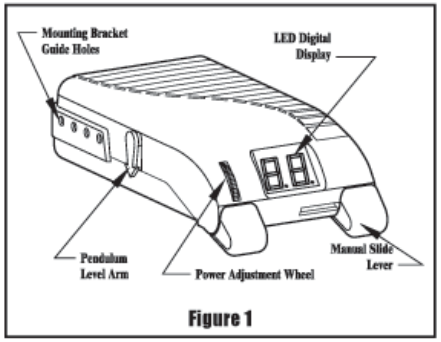


Figure 1

Installer and Owner: Read and follow these installation and adjustment instructions carefully. Leave this document in tow vehicle for future reference.

If you have any questions on installation, operation, adjustments, or troubleshooting of the Predator DX2 Brake Controller call (574) 295-7888 Monday through Friday between 8:00 AM and 5:00 PM ET.

CONTROLLER MOUNTING

The controller must be mounted with the back of the controller toward the front of the vehicle. Mounting angles must be within -35 to 90 degrees (Fig. 2).

Use the reversible slotted mounting bracket. Do not mount upside down or sideways. If the controller is mounted incorrectly, the pendulum within the controller cannot operate correctly while braking and may cause loss of trailer braking.

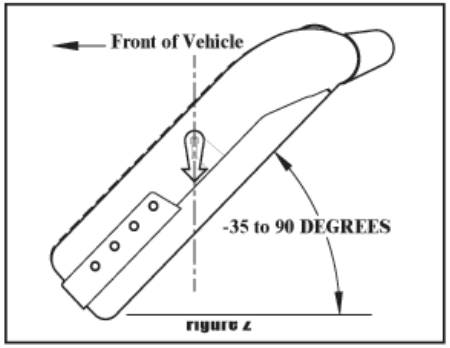


Figure 2

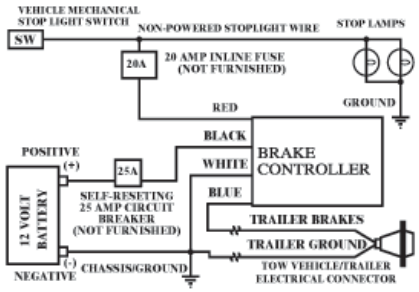
1) Install the mounting bracket to a solid surface under the tow vehicle dash using the two sheet metal screws or the two machine screws and the fasteners provided and tighten until snug.
2) Insert four of the sheet metal screws provided through the mounting bracket holes and into the desired controller anchor holes and tighten until snug. Do not use longer screws than the sheet metal screws provided.

CONTROLLER WIRING

Read the wiring instructions completely before you begin wiring the controller to the tow vehicle.

WARNING: All four controller wires must be connected properly for the controller to operate correctly. Failure to do so can cause loss of trailer braking and void the manufacturer's warranty.

All connections should be made using insulated, solderless, crimp style connectors. Use 14 gauge or heavier wiring for all wiring connections. Make and check all connections before connecting the trailer.



WIRING DIAGRAM

WHITE GROUND WIRE must be connected to a grounded metal part of the firewall or directly to the negative (-) terminal of the battery.

BLUE BRAKE WIRE must be connected directly to the trailer brake wire.

RED STOPLIGHT WIRE must be connected to the non-powered wire of the stoplight switch or tow package harness. A 20-amp inline fuse must be used when making this connection. If unsure of the correct vehicle wire to use call Dexter's Tech Services or ask the vehicle manufacture or vehicle dealer. Vehicle stoplight wire color and location are subject to change without notice.

BLACK POWER WIRE must be connected through a 25 amp self resetting circuit breaker to the positive (+) terminal of the battery. Route the black wire through a grommet hole in the fire wall to reduce wire grounding and away from the radio antenna to reduce any possible AM radio interference.

Do not connect the black wire to any vehicle power supply lines or fuse panels. Doing so may cause circuit overload or damage to tow vehicle wiring and vehicle electronics.

WARNING: The controller MUST be installed on 12-volt negative ground systems only. Reverse polarity, i.e. reversing the black battery (+) wire and white ground wire (-), breakaway kit activation without unplugging tow vehicle/trailer connector or improper wiring will destroy the controller and void the manufacturer's warranty. If not properly grounded, the controller and/or display will not operate correctly, which may result in erratic or no trailer brakes and no display operation. Improper or no connection may result in no trailer brakes or destroy the controller and void the manufacturer's warranty. Verify that the display increases numerically (from near 1.4 to 12 or more) as the manual slide is moved to the full on position before connection to the trailer.

MANUAL OPERATION LEVER

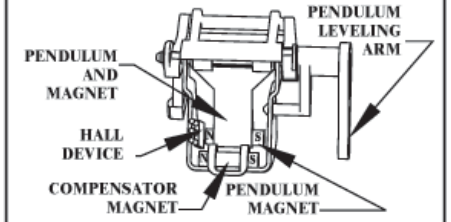
The manual slide lever (Fig. 1) located on the front right side of the controller is used to apply the trailer brakes independently of the tow vehicle brakes or to override the automatic trailer brakes. The further the manual slide lever is moved from the right to the left, the greater the amount of trailer braking effort applied. The manual lever operation is an inde-pendent circuit and overrides the power wheel adjustment to allow full braking effort when required.

Before connecting the trailer, verify that the tow vehicle stoplights are illuminated by the manual slide. The tow vehicle and trailer brake stoplights will be illuminated during the manual lever activation.

The manual operation may not disengage the Cruise Control on some vehicles. It is recommended that this be tested in a controlled environment.

AUTOMATIC OPERATION

During braking, when the tow vehicle stop lamps come on, the controller electric circuit is activated by power on the red stoplight wire connected to the tow vehicle stop lamp switch. As the tow vehicle decelerates, due to increased brake pedal effort, the pendulum magnet (Fig. 3) pulls away from the pendulum hall device and sends an electrical signal for the controller to increase amperage to the trailer brakes. The trailer brakes will apply in direct proportion to the tow vehicle braking effort. The controller display (Fig. 1) will increase numerically during a stop and will return to the minimum reading (near 1.4) when deceleration is no longer detected. When the tow vehicle brake pedal is released, the display will go off.



HALL EFFECT DEVICE

Figure 3

WARNING: In the automatic mode, the trailer brakes are energized only when the pendulum sensor detects deceleration. With the vehicle at rest and the brake pedal depressed, there should be no or slight output to the trailer brakes.

INITIAL SET UP AND ADJUSTING THE PENDULUM

1) Connect the trailer to the tow vehicle for this adjustment. If a load leveling hitch system is used, it should be connected and operational. Locate the tow vehicle and trailer on a flat level surface. Make sure the tow vehicle stop lamps are operating correctly and disconnect the tow vehicle/trailer electrical connector between the tow vehicle and the trailer.
2) Adjust the power wheel to maximum setting.
3) Depress the brake pedal far enough to turn on the vehicle stop-lamps. Hold this position.
4) Pull the pendulum leveling arm (Fig. 1) toward the display. The display should increase in numerical value.
5) Push the pendulum arm away from the display until the lowest number is displayed. The leveling arm (Fig. 2) should be approximately straight down. Repeat steps 4 and 5 several times to make sure the display has just reached the minimum number.

6) Release the brake pedal. The pendulum is now initially adjusted. A readjustment may be necessary if the loading of either the tow vehicle or trailer causes a considerable change in the tow vehicle front to rear position. Also a further readjustment may be desired during road test and performance adjustments.
7) Move the controller manual slide lever (Fig. 1) to the left, the controller display must increase in numerical value and the tow vehicle stop lamps must illuminate.
8) If the display does not illuminate or displays very low values, the tow vehicle has a short to ground in the trailer brake circuit or the controller white ground wire is not connected to ground, check and repair wiring and tow vehicle/trailer connector.
9) If the stop lamps do not illuminate, check the red stoplight wire connection of the brake controller for connections to the non-powered stop lamp wire of the vehicle stop lamp switch.
10) Connect the tow vehicle/trailer electrical connector. Move the controller manual lever to the left. The controller display must increase in numerical value and and the trailer stop lamps must illuminate.
11) If the display does not illuminate or displays very low values, check and repair the trailer brake magnets and trailer brake circuit (including thetow vehicle/trailer connector) for a short to ground.
12) If the trailer stop lamps do not illuminate, check and repair trailer wires, bulbs, bulb ground connections and the tow vehicle/trailer connector. Also check the red stoplight wire connection of the brake controller for connections to the non-powered stop lamp wire of the vehicle stop lamp switch.

NOTE: It is normal to hear the trailer brake magnets "hum" when operating the trailer brakes.

POWER WHEEL ADJUSTMENT

The power wheel (Fig. 1) is located on the front left side of the controller and is used to adjust the amount of current to the trailer brakes for obtaining smooth, proportional and optimum tow vehicle and trailer brake response. To increase the amount of current required, rotate the power wheel upward toward the top of the case. To decrease the amount of current required, rotate the power wheel downward toward the bottom of the case.

For initial setup, it is recommeded that you begin using your controller at the 5 - 6 range and adjust as necessary for driving conditions. Power wheel adjustments may be required based upon speed, trailer load and road conditions. Optimum trailer braking occurs just before the trailer wheels lockup. Trailer brake lockup could cause loss of control of the trailer and/or tow vehicle.

WARNING: Improper adjustment of the controller power wheel and pendulum may result in loss of trailer brakes, steady brakes, steady display, aggressive, grabby, pulsating or delayed trailer brakes.

BRAKING ON HILLS

When properly adjusted, the controller will allow a slightly greater amount of trailer braking going downhill and slightly less trailer braking going uphill. Normally, no controller readjusting is needed for towing in the hills.

TRAILER BRAKING WITH 4-WAY FLASHERS OPERATING

1) With the controller properly adjusted, the display may flash with the 4-way flasher lights, but will not operate the trailer brakes (Fig. 2).
2) If the controller is not adjusted correctly the trailer brakes can possibly pulse with 4-way flasher lights (Fig. 4).

TROUBLESHOOTING

Before connecting to the trailer, verify the brake controller is properly wired. Move the manual lever from off to on. The controller display must increase in value as the distance of the manual is increased. If not, the black or white wire connection may be faulty. The vehicle stoplights must be illuminated. If not, the red lead connection may be faulty. If the automatic mode does not function the red wire connection may be faulty.

After all of these functions are verified, connect the trailer. The manual slide must illuminate the trailer stoplights. If the trailer stoplights and automatic mode do not function the red wire connection may be faulty. If the trailer brakes do not function, the blue wire connection or the trailer ground may be faulty.

DISPLAY REPRESENTATION WHILE BRAKES ARE APPLIED AUTOMATICALLY OR MANUALLY

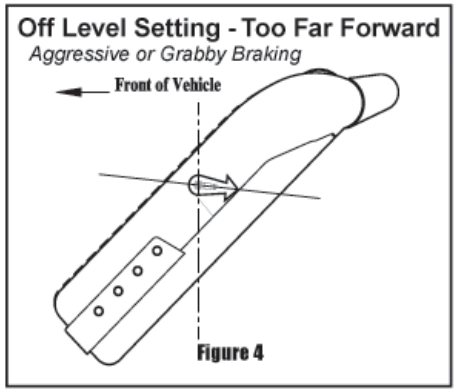
1) Increasing numerical values:
   Controller operating normally with power to the trailer brakes.
2) Low numerical values or display zero:
   White ground wire connection or black (+ battery) wire connection may be faulty or blue wire is shorted to ground.
3) Display flashes between 0.0 (zero) and numbers less than 1, there is a short circuit.
4) Display reads 13 or 14 volts and then reads 0.0, the controller is limiting an overload current to protect the controller and still supply maximum current to brake coils.

PENDULUM POSITION TROUBLESHOOTING

Adjusted Too Far Forward

When pendulum-leveling arm is adjusted too far toward the front of the controller (Fig. 4) the following may occur:

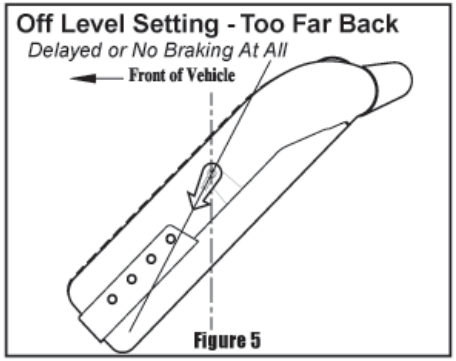
- o Steady high numerical value displayed
- o Grabbing trailer brakes
- o Trailer brakes will pulse with 4-way flasher light



Adjusted Too Far To The Rear

When the pendulum-leveling arm adjusted too far to the rear of the controller (Fig. 5) the following may occur:

- o Steady low numerical value
- o Delayed braking / No braking



Correctly Adjusted Pendulum

When the pendulum-leveling arm adjusted correctly (Fig. 2) the following will occur:

- o Steady low numerical value when vehicle is stopped on level ground
- o Increasing display values as pedal effort is increased while stopping
- o Smooth braking

ROAD TEST AND PERFORMANCE ADJUSTMENTS

To adjust the power wheel (Fig. 1) setting with the trailer connected.

1) Find a flat, hard, dry surface.
2) Adjust the power wheel to the midrange setting.
3) At a moderate speed (25mph or less) push on the tow vehicle brake pedal in a normal manner. A firm braking action should occur.
4) The controller display (Fig. 1) will increase numerically during a stop and will return to the minimum reading (near 1.4) when deceleration is no longer detected. When the tow vehicle brake pedal is released, the display will go off.
5) If more trailer braking is required, increase the power wheel. If less trailer braking is required, decrease the power wheel.

WARNING: Power wheel adjustments may be required based upon speed, trailer load and road conditions. Optimum trailer braking occurs just before the trailer wheels lockup. Trailer brake lockup could cause loss of control of the trailer and/or tow vehicle.

6) At a moderate speed (25mph or less) energize the manual lever slowly to the left. A much harder stop can always be obtained, as the power wheel setting does not affect the manual lever. The display values should increase during the stop and return to a minimum value when deceleration is no longer detected. When the tow vehicle brake pedal is released, the display will go off.
7) Readjustment of the pendulum-leveling arm: If the conditions described occur, refer to Figures 2, 4 and 5 for the affects of pendulum leveling arm adjustment.

LIMITED PRODUCT WARRANTY

Dexter Axle warrants to the original purchaser that its Predator Series (tm) electric brake controller shall be free from defects in materials and workmanship for a period of seven (7) years from the date of purchase. For detailed service and warranty information, please visit our website at www.dexteraxle.com or call (574)295-7888.

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