



**Electronic Brake Controller
Hayes Brake Controller Company
ENERGIZE III P/N # 81741B or ENERGIZE XPC P/N #81745**

OPERATION MANUAL

ENERGIZE III is for trailers with 2 or 4 electric brakes and vehicles with 12-volt negative ground systems only.

ENERGIZE XPC is for trailers with 2, 4, or 6 electric brakes and vehicles with 12-volt negative ground systems only.

READ AND SAVE THESE INSTRUCTIONS

- Before beginning operation, read and become familiar with these instructions.
- Leave in tow vehicle for future reference.
- **Improper installation and operation could cause personal injury, and/or equipment and property damage.**
- Questions on installation, adjustment, trouble shooting or operation of brake controllers:
- Call **800-892-2676** Monday through Friday between 8:00 a.m. and 5:00 p.m. Eastern Time.

SAFETY INFORMATION



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious, personal injury.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, could result in damage to product or property.



TIP: Contains helpful information to facilitate operation.

Operation Manual

Automatic Operation



CAUTION:

- In the automatic mode, noticeable braking is applied only when the pendulum sensor detects deceleration.
- With the vehicle at rest and the brake pedal depressed, there should be only a slight output to the trailer brakes.

1. During braking, the trailer brakes will work **in direct proportion** to the tow vehicle braking effort.
2. The more deceleration detected by the pendulum sensor, the greater the amount of power delivered to the trailer brakes.
3. The controller **red indicator light** (Figure 1) will illuminate from dim to bright during the stop and will return to dim when deceleration is no longer detected.
4. When the tow vehicle brake pedal is released, the controller and **red indicator light** will be turned off.

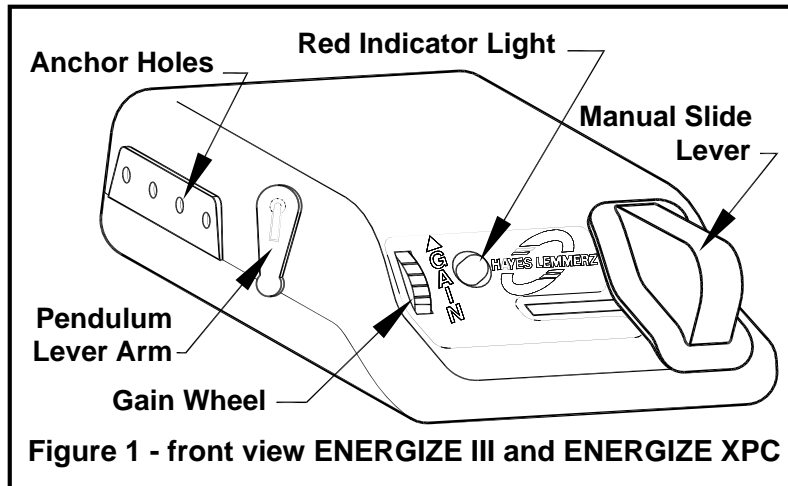


Figure 1 - front view ENERGIZE III and ENERGIZE XPC

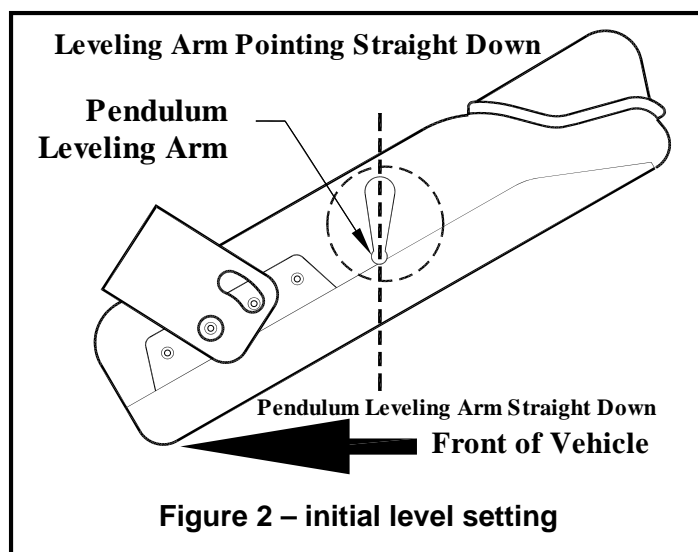
Gain Wheel Adjustment (for Automatic only)



WARNING:

- Improper adjustment of the controller could result in loss of trailer brakes, aggressive, grabby, pulsating, or delayed trailer brakes.
- Gain wheel adjustments may be required based upon speed, trailer load, and road conditions.
- Maximum trailer braking occurs just prior to lockup of the trailer wheels.
- Trailer brake lockup could cause loss of control of the trailer and / or the tow vehicle.

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



Adjusting the Pendulum



WARNING:

- Improper adjustment of the pendulum may result in poor performance of trailer brakes.
- Brakes may be unresponsive, grabby, delayed, or pulsating.

- 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 connection.
- Adjust the gain wheel to its maximum setting.
- Depress the brake pedal far enough to turn on the vehicle stop-lamps. Hold this position.
- Pull the pendulum leveling arm (Figure 1) toward the red indicator light. The red indicator light should illuminate bright red.
- Push the pendulum-leveling arm away from the indicator light until the light just reaches minimum brilliance. The leveling arm (Figure 2) should be approximately straight down. Repeat steps D and E several times to make sure the indicator light has just reached minimum brilliance.
- 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.

Manual Operation



WARNING:

Manual operation via the **manual slide lever** may not disengage the **Cruise Control** on some vehicles.

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- The “**Manual Slide Lever**” (Figure 1) is located on the front right side of the controller.
- The further the manual slide lever is moved from the right to the left, the greater the amount of trailer braking power.
- The manual slide lever operation is an independent circuit and overrides the gain wheel adjustment to allow full braking effort when required.
- The Manual Slide Lever is used to apply the trailer brakes independently of the tow vehicle brakes or to override the automatic trailer brakes when more braking is required.
- The manual slide lever is used in emergency stop situations when more braking may be required than is available with the Gain Wheel adjustment or for control of excessive trailer sway.
- The tow vehicle and trailer brake stoplights will be illuminated during the manual lever activation.



TIP:

It is normal to hear the trailer brake magnets “hum” when operating the trailer brakes.

Troubleshooting using the manual slide

To verify the brake controller is properly wired, follow these steps:

- A. Disconnect the tow vehicle/trailer electrical connector. Move the manual slide lever (Figure 1) to the left. The red indicator light must become increasingly brighter and the tow vehicle stop lamps must illuminate.
- B. If the red indicator light does not illuminate or glows dimly, the tow vehicle has a short to ground in the trailer brake circuit or the white ground wire is not connected to ground. Check and/or repair wiring and tow vehicle/trailer connector.
- C. 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.
- D. Connect the tow vehicle/trailer electrical connector.
- E. Move the manual lever to the left. The red indicator light must illuminate from dim to bright and the trailer stop lamps must illuminate.
- F. If the red indicator light does not illuminate or glows dimly, check the trailer brake magnets and trailer brake circuit (including the tow vehicle/trailer connector) for a short to ground.
- G. If the trailer stop lamps do not illuminate, check and repair trailer wires, bulbs, bulb ground connections, and the tow vehicle/trailer connector.
- H. Also check the red stop light wire connection of the brake controller for connections to the non-powered stop lamp wire of the vehicle stop lamp switch.

Red Indicator Light representation while brakes are applied manually

- 1) Dim to bright red illumination:
 - Controller operating normally with power to the trailer brakes.
- 2) Dim to No red illumination:
 - Faulty white ground wire connection, or faulty black battery (+) wire connection, or blue wire is shorted to ground.

Manual Remote Operation (ENERGIZE XPC only)



WARNING:

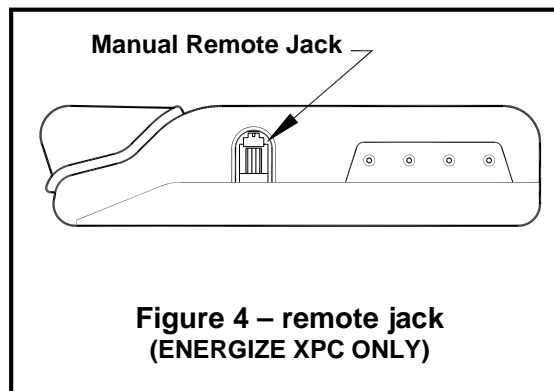
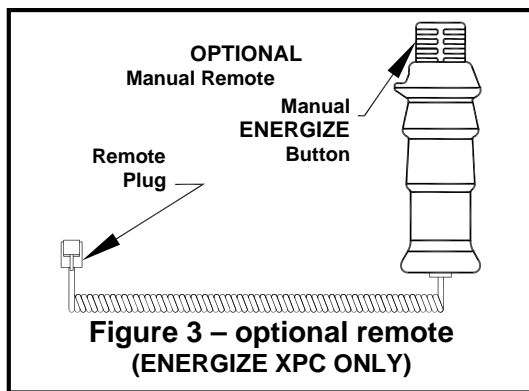
- Remote unit must be controlled by vehicle operator only.
- **Manual operation via the manual remote may not disengage the Cruise Control on some vehicles.**



WARNING:

- Always keep remote unit clear and away from obstructions to reduce the possibility of undesired trailer brake activation.
- If not using the remote, disconnect the remote from the controller.

- The “manual remote” (optional for the ENERGIZE XPC; see Figure 3) can be connected to the jack, shown in (Figure 4), located on the side of the controller.
- The further the red manual energize button is depressed, the greater the amount of trailer braking power.
- The manual remote operation is an independent circuit and overrides the gain wheel adjustment to allow full braking effort when required.
- The manual remote is used to apply the trailer brakes independently of the tow vehicle brakes or to override the automatic trailer brakes when more braking is required.
- The manual remote is used in emergency stop situations when more braking may be required than is available with the gain wheel adjustment or for control of excessive trailer sway.
- The tow vehicle and trailer brake stoplights will be illuminated during the manual remote activation.



TIP: ENERGIZE XPC only

- Replace supplied telephone handset cord with a longer cord for trouble shooting. Connect the remote with longer cord and stand beside trailer wheels. Energize the remote and verify that the brake magnets hum.
- Verify that the vehicle and trailer stoplights come on when the remote is energized.
- **Use supplied handset cord while towing the trailer.**

Road Test and Performance Adjustments

To adjust the gain wheel (Figure 1) with the trailer connected.

- A. Locate the tow vehicle and trailer on a flat, hard, dry surface.
- B. Adjust the gain wheel to the midrange setting.
- C. At a moderate speed (25 mph or less) push on the tow vehicle brake pedal in a normal manner. A firm braking action should occur.
- D. The red indicator light should illuminate from dim to bright during the stop and back to dim after the stop is completed.
- E. If more trailer braking is required, increase the gain wheel. If less trailer braking is required, decrease the gain wheel.
- F. At a moderate speed (25 mph or less) move the manual lever slowly to the left. A much harder stop can always be obtained, as the gain wheel setting does not affect the manual lever. The red indicator light should illuminate from dim to bright during the stop.
- G. At a moderate speed (25 mph or less) press the manual remote button slowly (only for ENERGIZE XPC with remote option). A much harder stop can always be obtained, as the gain wheel setting does not affect the manual remote. The red indicator light should illuminate from dim to bright during the stop.
- H. Readjustment of the pendulum-leveling arm: If the conditions described in items 1 and 2 below occur, refer to Figures 2, 5, and 6 for the affects of pendulum leveling arm adjustment
 1. Pendulum leveling arm adjusted too far to the rear of the controller (Figure 5):
 - No indicator light
 - Delayed braking
 - No braking
 2. Pendulum leveling arm adjusted too far toward the front of the controller (Figure 6):
 - Steady illuminated indicator light
 - Grabbing trailer brakes
 - Trailer brakes will pulse with 4-way flasher light
 3. Pendulum leveling arm adjusted correctly (Figure 2):
 - Dim indicator light when vehicle is stopped on level surface
 - Increasing indicator light as pedal effort is increased while stopping
 - Smooth braking

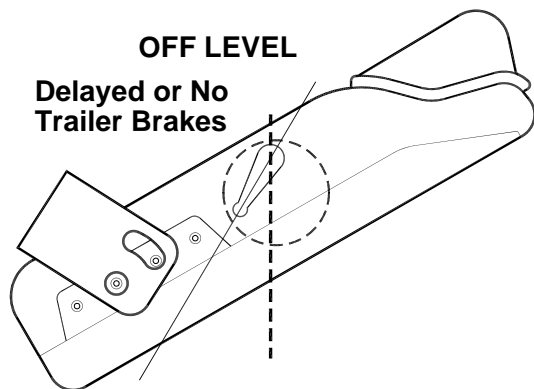


Figure 5 – delayed or no trailer brakes

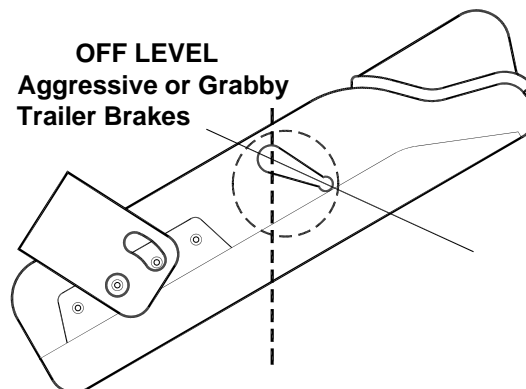


Figure 6 – aggressive or grabby brakes

**TIP:**

- Warm trailer brakes tend to be more responsive than cold 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

- A. With the controller properly adjusted, the red indicator light may flash with the 4-way flasher lights, but will not operate the trailer brakes. (Figure 5)
- B. If the controller is not adjusted correctly; the trailer brakes can possibly pulse with 4-way flasher lights. (Figure 6)

Troubleshooting

| Symptom | Possible Cause | Remedy |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trailer Brakes "Lock Up" | Gain set too high | Reduce gain setting |
| | Pendulum leveling arm set too aggressive | Move pendulum arm to a less aggressive position. See adjusting pendulum section. |
| Low output to trailer brakes | Gain set too low | Increase gain setting |
| | Pendulum leveling arm set too delayed | Move pendulum arm to a more aggressive position. See adjusting pendulum section. |
| Weak / Ineffective Brakes | Overloaded trailer | Check weight rating |
| | Loose or poor quality connections | Inspect connections / check with meter |
| | Insufficient wire gauge | Inspect / replace |
| | Trailer brakes out of adjustment | Inspect and adjust as needed |
| No output to trailer brakes (manual or automatic) | Improper Wiring | Check color codes of all wires. If unsure, contact your vehicle dealership or our customer support department at 1-800-892-2676. |
| | Improperly grounded | Ensure that the following are grounded: <ul style="list-style-type: none"> Controller (white wire) Tow vehicle connector Trailer umbilical cord Each brake magnet |
| | Trailer brakes out of adjustment | Inspect and adjust as needed |
| No output to trailer brakes (automatic only) | Faulty Brake Light Circuit on tow vehicle | Troubleshoot / repair brake light circuit |
| Intermittent or surging brakes | Improperly grounded | Check and repair all ground connections |
| | Out of Round brake drums | Repair / replace |
| | Worn wheel bearings | Repair / replace |
| No output to trailer brakes, red indicator light dim or off when brakes are applied. | Direct short to ground either in tow vehicle wiring or in trailer wiring. | Inspect and repair wiring |
| | Faulty brake magnets | Test / replace brake magnets |
| Reduced output to trailer brakes, red indicator light stops increasing in brightness with increased braking requirements. | Too many brake magnets are attached to controller | Energize III only handles 1-2 axles with brakes. Energizer XPC only handles 1-3 axles with brakes. |
| | Intermittent short to ground in tow vehicle or trailer wiring | Inspect and repair wiring |
| | Defective brake magnets | Test / replace brake magnets |
| Trailer brakes lock up when trailer connector cable is attached. | Faulty breakaway switch | Test / replace switch |
| Controller red indicator on all the time. | Indicates presence of an unexpected 12 Volts on the blue (output) wire due to one of the following: <ul style="list-style-type: none"> Faulty wiring Malfunctioning break-away switch | Inspect wiring and breakaway switch. Ensure that there is no voltage on the blue wire when the brake pedal is not depressed. |
| | Indicates presence of an unexpected 12 Volts on the red. | Inspect wiring. Ensure that there is no voltage on the red wire when the brake pedal is not depressed. |

If you are unable to completely remedy the symptoms using the troubleshooting guide, contact our Technical Support Service at 1-800-892-2676.