



**SYNCRONIZER®**  
Electronic Brake Controller  
Hayes Brake Controller Company P/N 81725

**OPERATION MANUAL**

**For trailers with 2 or 4 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.

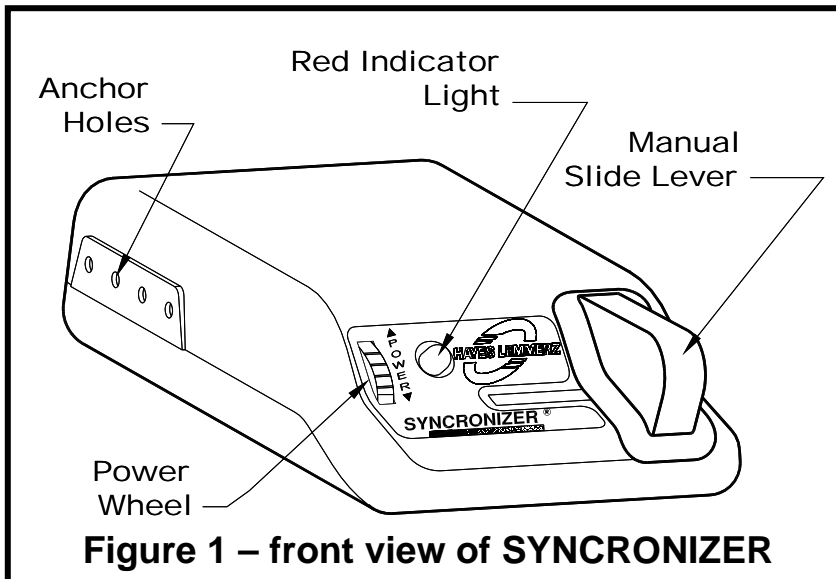
## Automatic Operation



### WARNING:

- Improper adjustment of the controller could result in loss of trailer brakes, aggressive, grabby, pulsating, or delayed trailer brakes.
- Power 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 automatic mode modulates and controls the current from the battery to the trailer brakes and operates on a time-based circuitry. The longer the brake pedal is depressed, the greater the current delivered to the trailer brakes. The current will increase until it reaches the preset brake power adjustment setting.



**Figure 1 – front view of SYNCRONIZER**

### Power Wheel Adjustment (for Automatic Braking only)

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

## Manual Operation



### **WARNING:**

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

- 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 power wheel adjustment to allow full braking effort when required.
- 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 or less braking is required.
- The manual slide lever is used in emergency stop situations when more braking may be required than is available with the power wheel adjustment or for control of excessive trailer sway.
- The indicator light will illuminate from dim to bright as the manual lever is applied and remains off when the manual lever is released.
- 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.

## Road Test and Performance Adjustments

### To adjust the power wheel setting with the trailer connected:

- A. Position vehicle on a flat, hard, dry surface.
- B. Adjust the power wheel to the midrange setting.
- C. At a moderate speed (25mph 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.
- E. If more trailer braking is required, increase the power wheel. If less trailer braking is required, decrease the power wheel.
- F. At a moderate speed (25mph or less) energize the brake controller by slowly moving the manual lever to the left. A much harder stop can always be obtained as the manual lever is not affected by the power wheel setting. The red indicator light should illuminate from dim to bright during the stop.



#### **TIP:**

- Warm trailer brakes tend to be more responsive than cold brakes.

## Troubleshooting

Symptom	Possible Cause	Remedy
Trailer Brakes "Lock Up"	Power wheel set too high	Reduce Power wheel setting
	Pendulum leveling arm set too aggressive	Move pendulum arm to a less aggressive position. See adjusting pendulum section.
Low output to trailer brakes	Power wheel set too low	Increase Power wheel 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"> <li>• Controller (white wire)</li> <li>• Tow vehicle connector</li> <li>• Trailer umbilical cord</li> <li>• Each brake magnet</li> </ul>
	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"> <li>• Faulty wiring</li> <li>• Malfunctioning break-away switch</li> </ul>	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.