THE PRODUCT

The JUMBO is a very powerful and versatile power pack. Its features are unmatched by any other model railroad power pack:

- true 10 amp output to power more locomotives
- easy to read, illuminated displays for track voltage and track current
- automatic protection against overload and overheating
- adjustable acceleration and braking
- adjustable maximum and minimum voltages
- adjustable timer
Wired Remote Control
LGB 50106
(not included)

- Wired Remote Control
- F1 Throttle knob
- F2A Forward
- F2B Reverse
- F3 Brake with pre-selected deceleration
- F4 Emergency stop (with no delay)

Operation
- Allows outdoor operation with JUMBO power.
- Allows freedom of movement with included 12 meter (39 foot) cable. (Cable can be extended up to 30 meters (100 feet) using RS-232 cables available at computer stores).

Technical features:
- 10 amp power output
- Adjustable acceleration
- Adjustable deceleration
- Adjustable maximum voltage
- Adjustable minimum voltage
- Delay timer (0-75 seconds)
- Volt and amp meters
- Touch keys with LED indicators
- Special functions for automatic train operation
- Special functions for remote control
- Meets strict international safety regulations

engineered for:
- Multiple locomotives
- Large layouts
- Multiple track blocks
- Long track blocks with significant power loss
- Advanced control functions
- Remote control connection
- 10 amp power output

operation
- Allows outdoor operation with JUMBO power.
- Allows freedom of movement with included 12 meter (39 foot) cable. (Cable can be extended up to 30 meters (100 feet) using RS-232 cables available at computer stores).
Controls of the JUMBO

Voltsmeter 0 - 30 volts
Indicates drive voltage

Ammeter 0 - 10 amps
Indicates drive current

Variable controls:
All variable control functions can be turned off by setting the controls to “0”.

Braking Drive voltage control
Infinitely variable

Minimum drive voltage
Adjusts the output voltage at the “0” setting of control ①

Maximum drive voltage
Adjusts the output voltage at the “6” setting of control ①

For ⑦ and ⑧
After setting the voltage range with ⑦ and ⑧ the range of the throttle knob ① remains constant (270°).

Acceleration

Delay Timer (0-75 seconds)
This timer is activated using LGB 17000/17100 track contacts or other switches. Once the timer has been started, it can be cancelled before the timed period has elapsed by pressing a direction key.

PEAR PANEL CONNECTIONS

- Emergency stop terminals
- Brake terminals
- Forward terminals
- Reverse terminals
- Timer terminals

-Emergency stop terminals
-Breaker terminals
-Forward terminals
-Reverse terminals
-Timer terminals

Function via Track Contacts

Instruction manual observe Safety Tips
MADE IN GERMANY by STEGER
Art.Nr. 31-0020 SER.-Nr. 93.10.1500

-Function via Track Contacts

Only for use in dry rooms
- buttons for emergency stop, stop and direction of travel
- connectors for external control of emergency stop, stop, direction and timer
- triple terminals for track power
- connector for 50106 JUMBO Remote Control, Wired

The JUMBO gives model railroaders enough power for large, complex layouts and multiple locos. You can use its features for automatic operation, for example, by using track contacts to trigger slow track sections or station stops.

THE PROGRAM
With this model, we recommend the following items:
- 00559 LGB Explore Guide Book, English
- 50106 JUMBO Remote Control, Wired
- 50161 Track Power Terminals, 2 pieces
- 51230 Blue/Red 2-Wire Cable, 15 m

For information on the complete LGB program, see the LGB catalog.

PREPARATION
CAUTION! Safety advice:
- This power supply should be inspected regularly for possible dangers, such as damage to the cables, plugs or housing. If damage is found, do not use this power supply. The house current cable cannot be replaced.
- Disconnect this power supply from house current before cleaning the housing.
- Disconnect this power supply from house current if there is a short circuit or overload. Remove the short circuit or overload before connecting the power supply again.
- This power supply is for indoor use only. Keep it away from moisture. The power pack must be placed in a well-ventilated location. Do not install it in an enclosed space. It generates heat!
- Do not insert anything into the air vents.

- This power supply is for use with LGB and LEHMANN products only.
- This product is not a toy. It is a power supply and/or throttle for LGB products only. This product is not for children under 14 years of age.
- Save the supplied instructions and packaging.

Connecting the transformer
Attention! If your layout has diodes installed in the electric circuit of the tracks (for example, at signals, reversing modules, reversing loops, etc.), the diodes must be rated for 10 amps. If necessary, replace the diodes.
Connect the power pack with the tracks (Fig. 2) using the screw terminals at the rear of the power pack. All red terminals are interconnected, as well as all blue terminals. Use the enclosed cable to connect a red terminal with one rail, a blue terminal with the other rail.

Attention! Use wires with a cross section of at least 1.5 mm² (14 AWG) to connect the JUMBO (for example, LGB 51230).

Hint: Twist the wire ends before inserting them into the terminal (Fig. 3).
Plug the power pack cord into a house current outlet.
OPERATION
To familiarize yourself with the JUMBO, set all knobs to “0” (Fig. 1). In this setting, the JUMBO is similar to other power packs, except that it is controlled by buttons in addition to the throttle knob. When a button is activated, the LED on the button illuminates.

- Select the direction of travel by pressing one of the arrow buttons 2A or 2B.
- Turn the big red knob in the center 1 clockwise from 0.

The output voltage increases, visible on the voltage display (voltmeter) 3. The locomotive moves.

The current display (ammeter) 1 shows the current the locomotive draws.

- Select the speed as usual using the big red knob.
- To change the direction, press the other arrow button. The train brakes automatically, stops, and decelerates in the other direction until it reaches the pre-set speed.
- To stop the train, press the “Halt” button with two vertical lines 4. The locomotive moves.
- To restart the loco, simply press one of the arrow buttons. The train accelerates until it reaches the speed selected with the throttle knob.

Overload protection
This power pack is protected against short circuits and overloading.

1. Short circuit: The voltage display (voltmeter) 3 shows 0 and the current display (ammeter) 1 is at the maximum value. Immediately unplug the transformer from the house current outlet. Find and remove the short circuit. Reconnect the power pack cord.

2. Overheating: The power pack must be placed in a dry, sheltered inside location. For outdoor operation, use the 50106 JUMBO Remote Control, Wired. You can extend the cable for the 50106 up to 50 m (100 ft.) using RS232 Interface Cables, available at electronics stores.

Remote Control
Use the 50106 JUMBO Remote Control, Wired (available separately) to remotely control the most important functions of the JUMBO. For more information, see the instructions for the 50106.

Control 5: Acceleration
Are all controls set to 0? To familiarize yourself with this function, set the throttle knob 1 to position 3. Press the STOP button 4. Set control 5 to a mid-range position. Now select a direction of travel by pressing one of the arrow buttons 2. The loco will accelerate slowly. This represents a long and heavy train of the prototype (train mass simulation). If you set control 5 to higher values, acceleration is slower. The train mass simulation is active even when you turn up the throttle knob 1 quickly. The train accelerates according to the preset acceleration.

Control 6: Braking
Are all controls set to 0? To familiarize yourself with this function, set control 6 to a mid-range position. The throttle knob 1 is set to 0. The train accelerates until it gets up to speed. Press the HALT button 3 (marked with two lines). The train slows down with realistic deceleration and stops.

Use the STOP button 4 to stop the train immediately to prevent an accident. When you press the arrow button for the current direction of travel, the braking is interrupted. The train accelerates again until it reaches the pre-set speed. The selected braking value is active even when you turn the throttle knob 1.

Control 7: Minimum voltage
Are all controls set to 0? To familiarize yourself with this function, press one of the two arrow buttons 2 or the HALT button 3. Now adjust control 7 to 1, 2, 3, etc. The track voltage increases even through the throttle knob is set to 0. This allows you to operate slow track sections. Or you can set the minimum voltage so that lights and sound of locomos with starting delay circuits work even when the loco is standing. When you now press the HALT button 3, the track voltage does not go to 0, but to the selected minimum voltage. Then press the STOP button 4 to reduce the track voltage to 0 immediately.

Control 8: Maximum voltage
Are all controls set to 0? To familiarize yourself with this function, press one of the two arrow buttons 2 and set the throttle knob 1 to the highest speed setting (6). Now adjust control 8 clockwise to 1, 2, 3, etc. The track voltage and thus the loco speed decrease. Limiting the top speed of your trains ensures that they do not derail on tight curves. The range of adjustment for the throttle knob 1 remains the same, giving you more precise control over your trains.

Hint: The operation of controls 2 and 3 (minimum and maximum voltage) are not entirely independent. After changing one setting, check the other and adjust it, if necessary.

Remote Control 2
This power pack is protected against short circuits and overloading.

1. Short circuit: The voltage display (voltmeter) 3 shows 0 and the current display (ammeter) 1 is at the maximum value. Immediately unplug the transformer from the house current outlet. Find and remove the short circuit. Reconnect the power pack cord.

2. Overheating: The power pack must be placed in a dry, sheltered inside location. For outdoor operation, use the 50106 JUMBO Remote Control, Wired. You can extend the cable for the 50106 up to 50 m (100 ft.) using RS232 Interface Cables, available at electronics stores.

Remote Control
Use the 50106 JUMBO Remote Control, Wired (available separately) to remotely control the most important functions of the JUMBO. For more information, see the instructions for the 50106.

Control 5: Acceleration
Are all controls set to 0? To familiarize yourself with this function, set the throttle knob 1 to position 3. Press the STOP button 4. Set control 5 to a mid-range position. Now select a direction of travel by pressing one of the arrow buttons 2. The loco will accelerate slowly. This represents a long and heavy train of the prototype (train mass simulation). If you set control 5 to higher values, acceleration is slower. The train mass simulation is active even when you turn up the throttle knob 1 quickly. The train accelerates according to the preset acceleration.

Control 6: Braking
Are all controls set to 0? To familiarize yourself with this function, set control 6 to a mid-range position. The throttle knob 1 is set to 0. The train accelerates until it gets up to speed. Press the HALT button 3 (marked with two lines). The train slows down with realistic deceleration and stops.

Use the STOP button 4 to stop the train immediately to prevent an accident. When you press the arrow button for the current direction of travel, the braking is interrupted. The train accelerates again until it reaches the pre-set speed. The selected braking value is active even when you turn the throttle knob 1.

Control 7: Minimum voltage
Are all controls set to 0? To familiarize yourself with this function, press one of the two arrow buttons 2 or the HALT button 3. Now adjust control 7 to 1, 2, 3, etc. The track voltage increases even through the throttle knob is set to 0. This allows you to operate slow track sections. Or you can set the minimum voltage so that lights and sound of locomos with starting delay circuits work even when the loco is standing. When you now press the HALT button 3, the track voltage does not go to 0, but to the selected minimum voltage. Then press the STOP button 4 to reduce the track voltage to 0 immediately.

Control 8: Maximum voltage
Are all controls set to 0? To familiarize yourself with this function, press one of the two arrow buttons 2 and set the throttle knob 1 to the highest speed setting (6). Now adjust control 8 clockwise to 1, 2, 3, etc. The track voltage and thus the loco speed decrease. Limiting the top speed of your trains ensures that they do not derail on tight curves. The range of adjustment for the throttle knob 1 remains the same, giving you more precise control over your trains.

Hint: The operation of controls 2 and 3 (minimum and maximum voltage) are not entirely independent. After changing one setting, check the other and adjust it, if necessary.

Control 9: Timer
This function cannot be triggered via the buttons. To familiarize yourself with this function, you need a short piece of wire or a paper clip. Set control 9 to a mid-range position. Set control 10 to 1 to a mid-range position as well. Select a direction of travel 2. Now the loco runs at a medium speed. Brieﬂy bridge the two black terminals 10. The loco brakes (with the pre-set deceleration) and stops. After the selected timer interval (0-75 seconds) has elapsed, the loco restarts and accelerates with the pre-set acceleration.

Together with control 9 (minimum voltage), you can operate a slow track section. Select the minimum voltage so that the train runs at the desired speed when the throttle knob 1 is set to 0. The timer can be activated using 17100 EPL Track Contacts to operate station stops or slow track sections.

Combining the functions
Obviously, you can combine all functions. All locos that are located in the track block connected to the JUMBO operate simultaneously.

Triggering the buttons using the rear terminals
The buttons can be triggered manually or automatically (for example, using 17100 EPL Track Contacts). For automatic train control, use the two terminals associated with each button. Brieﬂy bridge the terminals (for example, using a momentary switch or a 17100 EPL Track Contact) to trigger the function. When a button is triggered, the LED on the button illuminates.

For further examples, see the 00559 LGB Guide.
**Controlling Braking Through Stop-Section with Signal Hp0**

Function:
If the signal indicates “Stop”, the Brake function is activated when the locomotive passes over the first 17100 (17000) track contact. The train slows according to the deceleration setting until the speed falls to the minimum drive voltage setting. The train moves slowly to the stopping area and then parks in the stopping area.

If the signal indicates “Go”, the train moves to the second track contact and activates the direction touch key. The train accelerates according to the acceleration setting until the speed reaches the maximum drive voltage setting.

*Automatic operation in a signal controlled stop section*

**Automatic operation of a slow track section**

When the train passes over the 17100 (17000) track contact, the timer function of the JUMBO is activated. The train slows according to the deceleration setting and is held at the minimum drive voltage setting until the timed period is complete. Then the train accelerates according to the acceleration setting until the speed reaches the maximum drive voltage setting.

**SERVICE**

**Attention!** Improper service will void your warranty. For quality service, contact your authorized retailer or an LGB factory service station (see Authorized Service).

The power pack does not require maintenance. Clean it using a dry cloth. Do not use fluids to clean the power pack.

**Problems**

If the locomotives always go at top speed, no matter how the throttle knob is set, check whether the wire bridge on the terminals for the 50105/50106 JUMBO Remote Control is installed. When no remote control is connected, the wire bridge must be installed. Otherwise, the JUMBO provides maximum voltage as soon as it is connected to a house current outlet.

If other problems occur, check if they are caused by malfunctions in the layout. Reset the JUMBO to its initial setting: Set all controls to 0 and disconnect any connections at the black terminals on the rear. Then check the individual functions as described in these instructions.

The power pack may be opened only by the manufacturer. Unauthorized opening voids the warranty.

**AUTHORIZED SERVICE**

Improper service will void your warranty. For quality service, contact your authorized retailer or one of the following LGB factory service stations:

**Ernst Paul Lehmann Patentwerk**
Reparatur-Abteilung
Saganer Strasse 1-5
D-90475 Nürnberg
GERMANY
Telephone: (0911) 83707 0
Fax: (0911) 83707 70

**LGB of America**
Repair Department
6444 Nancy Ridge Drive
San Diego, CA 92121
USA
Telephone: (858) 535-9387
Fax: (858) 535-1091

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