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Bedienungsanleitung
Instruction
Instructions de Service

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 over-heating
- adjustable acceleration and braking
- adjustable maximum and minimum voltages
- adjustable timer
- 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

multiple locomotives
large layouts
multiple track blocks
long track blocks with significant power loss
advanced control functions
remote control connection
10 amp power output

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

50101/21
0.3 0203 PF
Wired Remote Control
LGB 50106
(not included)

F4
F2B
F2A
F3
F1

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

- Voltmeter 0 - 30 volts indicates drive voltage
- Ammeter 0 - 10 amps indicates drive current
- Indicators
  - Drive voltage
  - Drive current
- Variable controls:
  All variable control functions can be turned off by setting the controls to “0”.
- Braking
  Infinitely variable
- 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.
- Maximum drive voltage
  Adjusts the output voltage at the “8” setting of control (2)
- Minimum drive voltage
  Adjusts the output voltage at the “8” setting of control (9)
- For (2) and (9)
  After setting the voltage range with (2) and (9), the range of the throttle knob (6) remains constant (270°).

PEAR PANEL CONNEXIONS

- Emergency stop terminals
- Brake terminals
- Forward terminals
- Reverse terminals
- Timer terminals
- Function via Track Contacts
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 (2) or (3).
- Turn the big red knob in the center (1) clockwise from 0. The output voltage increases, visible on the voltage display (voltmeter) (5). The locomotive moves. The current display (ammeter) (4) 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 accelerates in the other direction until it reaches the pre-set speed.
- To stop the train, press the “Halt” button with two vertical lines (5). The train slows with the preset deceleration and stops.
- Use the “STOP” button (4) to stop the train immediately.
- 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) (5) shows 0 and the current display (ammeter) (4) 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 switches off automatically if it is overheating. Wait about 1 hour until it has cooled. Resume operations with fewer locomotives.

Outdoor operation
The JUMBO 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 30 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 07. To familiarize yourself with this function, set the throttle knob (1) to position 3. Press the STOP button (4). Set control (2) 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 ② 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 pre-set acceleration.

Control 6:
Braking
Are all controls set to 0? To familiarize yourself with this function, set control ② to a mid-range position. Use the throttle knob to start the train and get it 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 and set the throttle knob ① to the highest speed setting (6). Now adjust control ③ 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 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 ③ 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.

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 ② to a mid-range position. Set throttle knob 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 ③. 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 ② (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.
Additional examples for automatic train control.

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

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 a 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 first whether these problems 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

You are responsible for any shipping costs, insurance and customs fees.

Hint: Information on LGB products and LGB representatives around the world is available online at www.lgb.com

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WARRANTY

This precision product is made using high quality components and technology. A fine tolerances, it has been crafted by hand. Constant monitoring of materials and assembly, together with full testing, ensures a constant level of high quality. To get the most enjoyment from this product we encourage you to read the instructions and this warranty.

WERNER PAUL LEHMANN PATENTWERK warrants this product worldwide for two years from the date of original purchase against defects in materials and workmanship. It is purchased from an authorized retailer.

If you have a valid warranty claim, including proof of purchase from an authorized retailer, we will repair or replace the product at our discretion. If it is impossible to repair or replace the product, we will refund all or a reasonable portion of the purchase price at our discretion.

Of course, you may have other legal rights independent of this warranty, particularly in the case of material defects. To make a claim under this warranty, please bring the product, with the proof of purchase, to your authorized retailer. To find an authorized retailer, please contact one of the service departments listed below. You are responsible for all shipping costs, insurance and custom fees.

ERNST PAUL LEHMANN PATENTWERK Service Abteilung Garantie Sagengasse 1-5 85479 Nürnberg Deutschland Telefon: (0911) 63 707-0
LOB OF AMERICA Warranty Service Department 6444 Nancy Ridge Drive San Diego, CA 92121 USA Telefon: (619) 335-60-87

Please note: This warranty does not cover damage caused by improper use or unauthorized modifications/repairs. This warranty does not cover normal wear and tear. Transferring and copying are subject to strict CE and UL regulations and may only be opened and repaired by manufacturer. Any variations automatically void this warranty and prevent any repair by any.

We, U.S. only. This warranty gives you specific legal rights, and you may have other rights which vary from State to State. We are very proud of our products, and all of us already hope they give you many years of enjoyment!

Wolfgang, Roth, Johannes Richter

GUARANTEE

Our products are precision-manufactured in design and technology. They are manufactured under high quality standards and conditions. Full testing and constant monitoring of materials and assembly, together with full testing, ensures a constant level of high quality. To get the most enjoyment from this product, we encourage you to read the instructions and this warranty.

WERNER PAUL LEHMANN PATENTWERK warrants this product worldwide for two years from the date of original purchase against defects in materials and workmanship. It is purchased from an authorized retailer.

If you have a valid warranty claim, including proof of purchase from an authorized retailer, we will repair or replace the product at our discretion. If it is impossible to repair or replace the product, we will refund all or a reasonable portion of the purchase price at our discretion.

Of course, you may have other legal rights independent of this warranty, particularly in the case of material defects. To make a claim under this warranty, please bring the product, with the proof of purchase, to your authorized retailer. To find an authorized retailer, please contact one of the service departments listed below. You are responsible for all shipping costs, insurance and custom fees.

ERNST PAUL LEHMANN PATENTWERK Service Abteilung Garantie Sagengasse 1-5 85479 Nürnberg Deutschland Telefon: (0911) 63 707-0
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