The LG100 is used to send stop commands to NMRA DCC locomotive decoders for the purpose of automatically stopping decoder equipped locomotives.

The LG100 is compatible with all NMRA DCC Command Stations

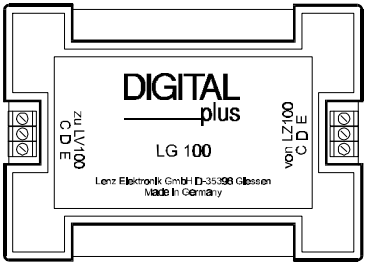
Information

LG100 Brake Module

Art. No. 22500

DIGITAL plus

September, 1997


DIGITAL
plus
LG 100
zu LV100
C D E
von LZ100
C D E
Lenz Elektronik GmbH D-35398 Giessen
Made in Germany

The DIGITAL plus brake module LG100

The brake module LG100 serves to provide prototypical slowing and stopping of digital locomotives in front of a ‘red’ signal.

LG100 generates the control signals for a power station, just like the DIGITAL plus command station LZ100. The LG100 does not have an amplified output for connection to the track. For operation, a power station (such as an LV100) with its corresponding transformer is needed.

Function of LG100:

The brake module sends a digital signal that all locomotive decoders can react to. This is possible through the transmission of a special digital address. This address is received, evaluated and acted on by all locomotive decoders that are in an area fed by the brake module. The brake module sends the command “speed step 0” as speed data. This order stops the locomotive, after it slows down at the preset deceleration rate. You must use suitable devices to ensure that the locomotive decoder receives the digital signal from the brake module at the right time. You can find out how to do that in the connection suggestions below.

Connecting the LG100

The LG100 is installed between the command station and a dedicated power station. Illustration 1 shows the connection of the brake module to command station LZ100 on one hand and power station LV100 on the other.

On each side of the brake module is a 3 connector screw strip. The connectors CDE (von LZ100 [from LZ100]) on the right side are to be wired to the corresponding connectors on the command station LZ100. The outputs on the left side (zum LV100 [to LV100]) are wired to the corresponding connectors on the power station LV100. Twist the wires at connectors C and D respectively.

The upper part of illustration 1 also shows the connection of a power station LV100 to the command station LZ100, just like you are already familiar with it.

The upper power station outputs a ‘normal’ digital signal at position A; the lower LV100 outputs the special brake module signal, as described above, at position B.

Connection suggestions

Divide the track in front of the signal into two areas (see illustration 2).

The first part, the operating section, must be at least as long as the longest train on the layout.

The length of the second part, the stop section, is determined by the deceleration rate set in the locomotive decoder. This area must be long enough to safely bring the locomotive to a complete stop.

The operating and brake sections are in the following referred to as a ‘block’. At beginning and end of the block you need to cut both rails. Then install a polarity free (isolated) train detector at the beginning of the stop area (see illustration 2). The LB100 is an example of a suitable train detector.

Relay 1 (twin-coil) serves to switch the block between command station signal ‘A’ and the brake module signal ‘B’.

Relay 2 (twin-coil) ensures that when the signal shows ‘green’, the section is not switched to the brake module signal (This relay activates the train detector, TD). If the signal shows ‘green’, then the connection to the train detector is interrupted by relay 2. In other words, relay 2 is connected in parallel with the signal drive and switched with it.

The sequence of events at a ‘red’ signal

When a train enters the block, the normal digital signal (from command station LZ100 and its power station LV100) is present in the block.

When the locomotive reaches the stop section, the train detector (TD) is activated and relay 1 switches the block (both operating and stop sections) from track signal ‘A’ from the command station to track signal ‘B’ from the brake module.

Because the whole block is switched over to the signal from the brake module, this setup works for pushed trains as well (push-pull trains with cab cars). In this case, the train detector (TD) is activated by the first car of the train.

The train must be fully inside the block at this point.

The locomotive decoder receives the signal from the brake module, decodes the command to stop, and decelerates the locomotive at the pre-programmed deceleration rate to a complete stop.

If the signal now is set to ‘green’, then relay 1 switches the block back to the command station signal. The locomotive decoder again receives its ‘old’ speed step and the locomotive starts up with the pre-programmed acceleration rate.

At the same time relay 2 breaks the connection between the train detector (TD) and relay 1, so that any further pulses will not lead to a new braking sequence.

When the train leaves the block, the signal is set to ‘red’ again, and relay 2 reestablishes the connection between train detector (TD) and relay 1. Then the next train will come to a stop in front of the signal.

If you want to be able to operate a train in this block in the opposite direction with a signal showing red, you need to use another relay to deactivate the train detector.

Important:

If the block is fed the signal from the brake module, then the double gaps in the track between the block and the section before and after must not be run over. If they are, you will have a short circuit and DIGITAL plus will switch into EMERGENCY STOP!

As a polarity free (isolated) train detector, you can use, for example, the ROCO contact track 42518, or also a REED contact. In case of the latter, you must install a magnet in the cab car of pushed trains (in the first car in the direction of travel).

Another option is to use a current sensor such as the LB100. Then you must have a double gap in the track between the operating and the stop sections, and monitor the stop section with the current sensor. Now you switch over to the brake module as soon as a current user enters the stop section. In pushed trains you need to equip the first car with interior lighting.

If you use the Arnold universal relay 86077 as the relay, the train detector does not have to be isolated. Please see the manual of the universal relay for information on how to connect such train detectors (for example Arnold 7440).

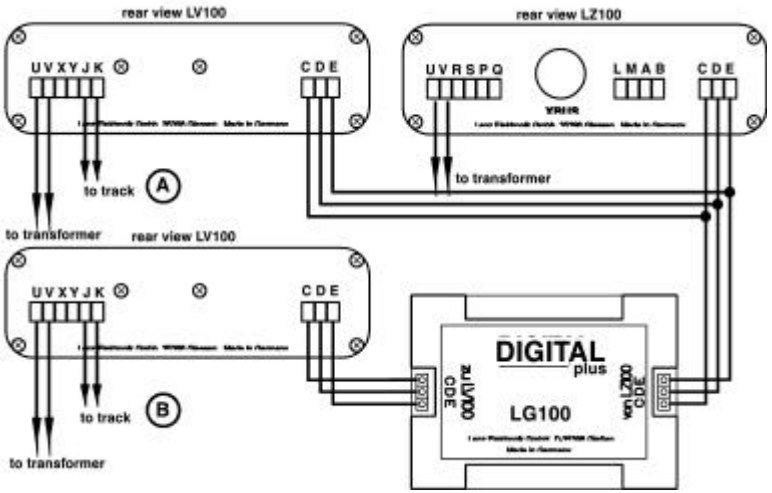


Illustration 1: Connecting the brake module to LZ100 and LV100

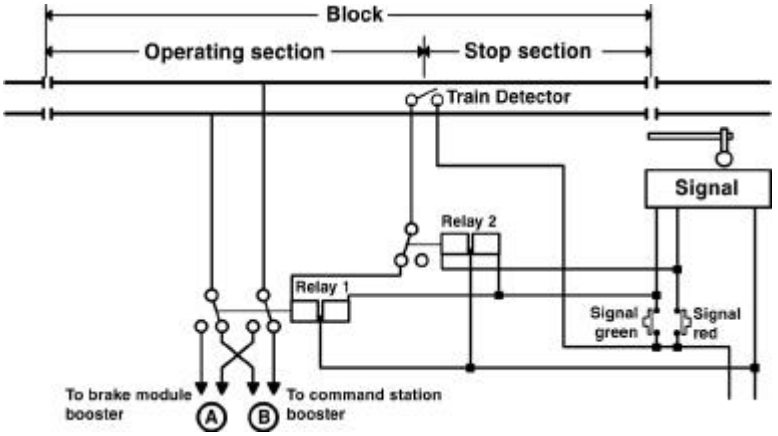


Illustration 2: Suggested connection schematic

Warranty

Lenz GmbH does everything it can do to ensure that its products are free from defects and will operate for the life of your model railroad equipment. From time to time even the best engineered products fail either due to a faulty part or from accidental mistakes in installation. To protect your investment in Digital Plus products. Lenz GmbH offers a very aggressive 10 year Limited Warranty.

This warranty is not valid if the user has altered, intentionally misused the Digital Plus product, or removed the product's protection, for example the heat shrink from decoders and other devices. In this case a service charge will be applied for all repairs or replacements. Should the user desire to alter a Digital Plus Product, they should contact Lenz GmbH for prior authorization.

Year One: A full repair or replacement will be provided to the original purchaser for any item that that has failed due to manufacturer defects or failures caused by accidental user installation problems. Should the item no longer be produced and the item is not repairable, a similar item will be substituted at the manufacturers discretion. The user must pay for shipping to an authorized Lenz GmbH warranty center.

Year 2 and 3: A full replacement for any item will be provided that has failed due to manufacturer defects. If the failure was caused by accidental user installation or use, a minimal service charge may be imposed. Should the item no longer be produced and the item is not repairable, a similar item will be substituted at the manufacturers discretion. The user must pay shipping to and from the authorized Lenz GmbH warranty center during this portion of the warranty period.

Year 4-10: A minimal service charge will be placed on each item that has failed due to manufacturer defects and/or accidental user installation problems. Should the item no longer be produced and the item is not repairable, a similar item will be substituted at the manufacturers discretion. The user must pay shipping to and from the authorized Lenz GmbH warranty center during this portion of the warranty period.

Please contact your dealer or authorized Lenz GmbH warranty center for specific instructions and current service charges prior to returning any equipment for repair.

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This equipment complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.