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FLEISCHMANN Z21 10837 Single Decoder

FLEISCHMANN Z21 10837 Single Decoder Instructions

Contents

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PROPERTIES OF THE INBUILT DCC-DECODER

Locomotives with an inbuilt DCC-decoder can be run using the FLEISCHMANN control equipment LOK-BOSS, PROFI-BOSS, multiMAUS, multiMAUSPRO, TWIN-CENTER and Z21 as well as with other DCC-controllers conforming to the NMRA standard, without the need to alter the DCC-decoder of the vehicle when changing from one system to another (with the exception of loco addresses higher than "4"). With a DCC-decoder installed, the speed of the loco remains constant, irrespective of the load, i. e. whether up or downhill, the loco will run at the same speed (allowing for sufficient motive power).
Max. size N: 12.9 x 9 x 3.4 mm · Load capacity: Motor 800 mA, Light 200 mA · Address: Electronically codeable · Special function Light: Switchable On/Off, co-ordinated with direction of travel · Power Control: Speed unaffected by load · Acceleration and Braking Inertia: Settable at several levels · Control Charac
teristics: 2, settable · Motor and Light Output: Protected against short circuit · Overheating: Switches off when overheated · Sender function: Already integrated for RailCom1).
In the event of a short circuit between the motor connections, the DCC-decoder switches itself off, and in addition, by blinking the loco lights will indicate the type problem: Continual

- **Blinking**: Short Circuit
- **Double Blinking**: Overheating
- **Triple Blinking**: Current overload
- Once the cause of the problem has been sorted out, the loco will run once more.

ADVICE: The digital DCC-DECODERS are high value products of the most modern electronics, and therefore must be handled with the greatest of care: Liquids (i. e. oil, water, cleaning fluid …) will damage the DCC-DECODER. · The DCC-DECODER can be damaged both electrically or mechanically by unnecessary contact with tools (tweezers, screwdrivers, etc.) · Rough handling (i. e. pulling on the wires, bending the components) can cause mechanical or electrical damage · Soldering onto the DCC-DECODER can lead to failure.

OPERATION WITH THE FLEISCHMANN DCC-DIGITAL SYSTEM

Locos with inbuilt DCC-DECODER can be used with the FLEISCHMANN-controllers LOK-BOSS, PROFI-BOSS, multiMAUS, multiMAUSPRO, TWIN-CENTER and Z21 conforming to the NMRA standard. Which DCC-decoder functions can be used within which parameters are fully described in the respective operating instructions of the respective controller. The prescribed functions shown in the instruction leaflets included with our controllers are fully useable with the DCC-decoder. The simultaneous, compatible running possibilities with D.C. vehicles on the same electrical circuit is not possible with DCC controllers conforming to NMRA standards (see also manual of the respective controller).

CODING THE ADDRESS
Using the controller TWIN-CENTER, multiMAUS, multiMAUSPRO, PROFI-BOSS and Z21 the address can be altered at any time from address 1 to 9999. Using the LOK-BOSS the address can be altered at any time to address 1 through 4. Please make yourself familiar with the instructions which are included with each piece of equipment.

PROGRAMMING WITH DCC
The DCC-decoder enables a range of further settable possibilities and information according to its characteristics. This information is stored in so-called CVs (CV = Configuration Variable). There are CVs which store only a single information, the so-called Byte, and others that contain 8 pieces of information (Bits). For FLEISCHMANN, the Bits are numbered from 0 to 7. When programming, you will need that knowledge. The CVs required we have listed for you (see CV table).

The pre-adjusted basic values of the CVs can be altered by use of TWIN-CENTER, multiMAUS, multiMAUSPRO, PROFI-BOSS, Z21 and other DCC controllers that accord to NMRA standards and that are capable of the programming by bits and bytes in mode "CV direct". The programming of some CVs by register-programming is also possible. Furthermore, all CVs can be programmed byte-wise on the main track, independently from the

programming-track. However, this is possible only if your appliance is capable of this programming-mode (POM – program on main).

Further information concerning that issue is given in the respective manuals and operating instructions of the digital controllers. The pre-adjusted basic values of the CVs can be altered by use of the above described DCC controllers that accord to NMRA standards. The vehicles will then behave according to the values that you have set within the CVs.

CVS OF FLEISCHMANN DCC-DECODER

CV	Name	Basic value	Meaning
1	Loco address	3	Bei DCC effective with CV29 Bit 5=0.
2	v min	3	Minimum speed (range of values: 0-255)
3	Acceleration inertia	2	Inertia Value when Accelerating (range of values: 0-255).
4	Braking inertia	2	Inertia Value when Braking (range of values: 0-255).
5	v max	150	Maximum speed (range of values: 2-255).
6	v mid	0	Medium speed (not in use when 0) for non-linear characteristic curve.
7	Manufacturer version-no	. 101	Read only: Type number of inbuilt decoder
8	Manufacturer ID	155	NMRA Identification No of Manufacturer. FLEISCHMANN is 155. If you program values into that CV, you can achieve a reset of certain CVs to the factory settings. Example: CV8 = 3 will reset CV3 to its factory setting.
9	Motor control	20	0: PWM off, motor frequency 100 Hz; 15-22: motor frequency 15-22 kHz
12	Current type	Bit 0=1	Bit 0 = 1: DC operation (”analog“) possible. Bit 0 = 0: DC operation off.
17	Extended address (Upper section)	192	Upper section of additional adresses. Effective for DCC with CV29 Bit 5=1.
18	Erweiterte Adresse (Lower section)	0	Lower section of additional adresses. Effective for DCC with CV29 Bit 5=1.
28	RailCom1) Configuration	3	Bit 0=1: RailCom1) channel 1 (Broadcast) is switched on. Bit 0=0: switched off. Bit 1=1: RailCom1) channel 2 (Data) is switched on. Bit 1=0: switched off.

29	Configuration values	Bit 0=0 Bit 1=1 Bit 2=1 Bit 4=0 Bit 3=0 Bit 5=0	Bit 0: With Bit 0=1 the direction of travel is reversed. Bit 1: Basic value 1 valid for controllers with 28/128 speed levels. For controllers with 14 speed levels use Bit 1=0. Feed current detection: Bit 2=1: DC travel (analog) possible. Bit 2=0: DC travel off. Switching between 3-point-curve (Bit 4=0) and speed table (Bit 4=1) in CV67-94. Bit 3: With Bit 3=1 RailCom1) is switched on. With Bit 3=0 it is switched off. Bit 5: For use of the additional addresses 128 – 9999 set Bit 5=1.
30	Error information	0	Read only. Indicates if there is a short circuit or an overheating at one of the outputs.
51	Individual FLEISCHMANN- functions	Bit 0=1 Bit 6=1	The load independent running (motor control) is preset (Bit 0=1). Can be switched off also (Bit 0=0). Blinking of lights to indicate short circuit, overheating or current overload. Switching off this function with Bit 6=0.
64 lues. troller s	RESET will indicate	0	Cannot be altered. Writing of an 1 (CV64=1) will reset the decoder to basic va- All individual altered settings will be lost. Attention: Some con- an error on RESET, but will carry it out, others will not. Depending on the respective controller, repeated action of the RESET will assist. Further possible **resets**: CV64=3: Speed step table CVs 67-94, trim values CVs 66, 95; CV64=4: 3-point-curve CVs 2, 5, 6, trim values CVs 66, 95; CV64=6: addresses, CVs 1, 17, 18, 29.
66	Forwards trim	248	Here, the speed values contained in CV67-94 can be adjusted by percentage from 248=100%. E.g. 124=50%. Value valid for running forward.
67 to **94**	Adjustment of control characteristic curve of controller		A speed between 0 and 255 can be given in each of the 28 VCs from 67 to 94. CV67 holds the minimum speed, and CV94 holds the top speed. The control characteristic curve is then determined by intermediate values. They decide how the speed of the vehicle alters with the controller setting.
95	Backwards trim	248	As CV66, but for running backwards.

RUNNING ON CONVENTIONAL DC LAYOUTS

You want to run your FLEISCHMANN DCC-loco once in while on a DC layout? No problem at all, because as delivered, we have adjusted the respective CV29 and CV12 in our decoders so that they can run on "analog" layouts as well! However, you may not be able to enjoy the full range of digital technique highlights.

If a locomotive with this decoder runs from the digital layout into an analog layout and the transformer is set for this area that the locomotive will continue in the same direction, so the locomotive will do so. The speed is dependent on the setting of the transformer. You can then shunt the train in the digital layout and then go to run in an analog circuit of your model railway layout.

BRAKING SECTIONS

In the digital systems you have also automatic braking sections. In this vehicle, the support of braking sections is turned on. If a locomotive with this decoder runs from the digital layout into an analog layout and the transformer is set for this area that the locomotive will run in the opposite direction, the locomotive slows down with the deceleration stored in the decoder and stops. The decoder knows that this is the analog braking distance with opposite DC voltage. If the transformer is now turned to zero, then the locomotive can be operated afterwardswith the same transformer in analog mode. If the brake section is switched from analog to digital again, the locomotive continues running with its digital commands.

SIMULATION OF TRAIN WEIGHT

In our decoders we have integrated acceleration and braking inertia values, that represent the weight of a "real" locomotive (see CV-table). Often, however it is of advantage to be able to switch off this simulation, e.g. when coupling. The inertia can then be switched on and off using the function key F5.

SHUNTING GEAR

Some operational situations require delicate speed adaption, often called 'shunting gear'. By using the F6 function key, you can set your DCC-loco to "half speed" with increased speed levels in order to make the shunting far more finely controllable.

RAILCOM1

The decoder in this car has RailCom1) functionality, i.e. it does not only receive data from the control center, but can also return data to a RailCom1) capable control center. For more information please refer to the manual of your RailCom1) capable control center. By default RailCom1) is switched off (CV29, Bit 3=0). For operation at a control center that does not have RailCom1) capability, we recommend to leave RailCom1) switched off.

ADVICE ON SWITCHING THE DIGITAL LAYOUT ON AND OFF

To switch off your model railway controller, first of all activate the emergency stop function of the controller (see instructions with the controller). Then finally, pull out the mains plug of the controller power supply; otherwise you might damage the appliance. If you ignore this critical advice, damage could be caused to the equipment.

Documents / Resources

FLEISCHMANN Z21 10837 Single Decoder [pdf] Instructions
Z21 10837 Single Decoder, Z21 10837, Single Decoder, Decoder

References

- **⊤ FLEISCHMANN Modelleisenbahn**
- **User Manual**