

IntelliDrive - Energy Buffer 71800



for all usual H0 Decoders

Reliably bridges small power interruptions

Characteristics 71 800

- Ideal for two and three axle vehicles
- With its own intelligence it is suitable for almost all of the usual locomotive decoders
- Prevent jerky running with dirty rails
- Reliably brings small vehicles across long turnout routes
- Buffers the Sound in vehicles with poor power pick-up
- Intelligent charging circuit
- Programming with a DCC or Motorola Digital center
- Does not inhibit programming of the locomotive decoders
- Microprocessor controlled charging circuit booster overloading
- Simple connection with four wires

Description

The IntelliDrive-Energy Buffer reliably bridges small power supply interruptions. Jerky running on dirty tracks and across long turnout routes will no longer happen. Even the Sound will no longer have dropouts. Because of its in-built intelligence the Energy Buffer can be used with all the common locomotive decoders.

Connection is made with four wires and is very simple. Two wires are connected to the vehicle's power pick-up, two wires are connected to the decoder.

The Energy Buffer has a microprocessor controlled charging circuit. Programming of locomotive decoders, even with an installed Energy Buffer, is possible without difficulty because the charging circuit is switched off during programming. This special charging circuit prevents overloading of boosters even when many vehicles have Energy Buffers fitted. The variable changing concept allows a delay (start-up time) to be programmed into the Energy Buffer, which it then uses to delay the charging of the Goldcap after the power is first switched on. The Energy Buffer decodes the speed step in DCC operation. If the locomotive's speed step is 0 the Goldcap is randomly charged. If the speed step is larger than 0, the Goldcap is continuously charged. Various parameters are programmable with CV-Programming (see CV Table).

Installing the Energy Buffer 71 800

Mount the Energy Buffer into the vehicle so that no electrical connection is made between the Energy Buffer and other conducting parts of the vehicle. A short circuit will result in destruction of the component and may also damage other components in the vehicle. Ensure that the Energy Buffer is firmly seated and cannot move while the vehicle is driving.

Connecting the cables

Connections on the wires to the locomotive decoder should only be made by experienced specialists. It requires the appropriate tools, like a soldering station with the finest soldering tip, as well as technical competence.

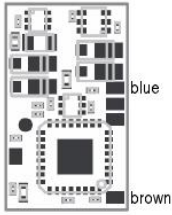
When an Energy Buffer is installed into a vehicle, the red wire is connected to the right pick-up (or pick-up shoe) and the black wire to the left pick-up (or chassis, wheels).

The brown wire is connected to the decoder earth (GND) and the blue wire either to the +20 V of the locomotive decoder, or, when only the Sound from a Sound decoder is used, with the +15V (see Connection Examples).

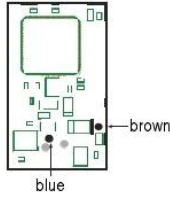
Connection Examples for Uhlenbrock Locomotive and Function decoder

In the following examples the location of the decoder earth (brown) and +20V (blue) on various locomotive decoders are shown.

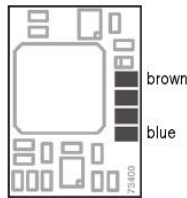
Loco Decoder 731xx



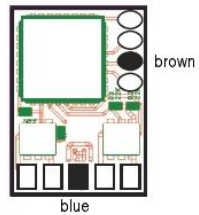
Loco Decoder 73200



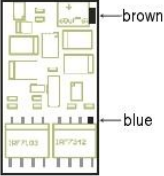
Loco Decoder 734xx



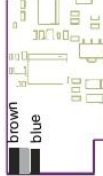
Func. Decoder 73800



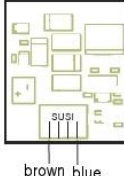
Loco Decoder 76150



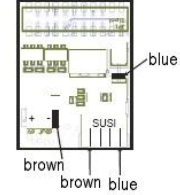
Loco Decoder 76200



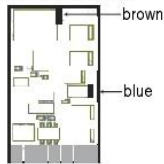
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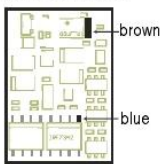
Loco Decoder 76330



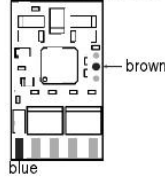
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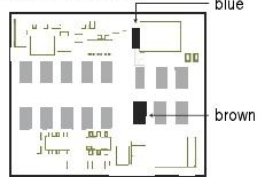
Loco Decoder 76560



Func. Decoder 76900



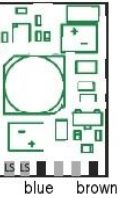
Loco Decoder 77100



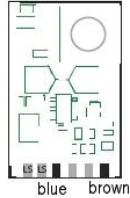
Connection Examples for Uhlenbrock Sound modules and decoders

In the following examples the location of the decoder earth (brown) and +15V (blue Sound) on various Sound module or +20V for the decoders (blue Decoder) are shown.

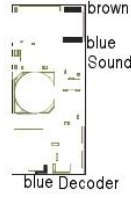
Sound Module 32300



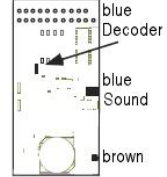
Sound Module 32500



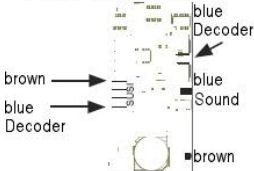
Sound Decoder 331xx



Sound Decoder 35330



Sound Decoder 363xx



Buffer time: The preset method during the buffer time essentially depends on three factors:

1. The vehicle's power pick-ups
2. The vehicle's operating smoothness
3. Gear reduction

Assuming the motor still runs with a 5V motor potential (typical value), the following times result depending on power usage:

- approx. 100 ms for a power usage of 780 mA
- approx. 400 ms for a power usage of von 520 mA
- approx. 1 s for a power usage of 260 mA

Programming the Energy Buffer 71 800

The configuration of all Energy Buffer options is done with configuration variables (CV's) compatible with the DCC standard. The Energy Buffer can be programmed with the Intellibox and other DCC or Motorola centers.

Programming with an Intellibox

We recommend that the Energy Buffer is programmed via the DCC Programming Menu. The Intellibox supports DCC programming with an easy to use menu. Long Addresses do not have to be laboriously calculated. They can be entered directly. The Intellibox automatically calculates the values for CV 17 and CV 18.

For the exact procedure read the appropriate chapter in the Intellibox Handbook.

Programming with DCC Devices

Use the programming menu in your DCC Center in order to read and program the Energy Buffer CV's by Register, CV directly or Page Programming. It is also possible to program the Energy Buffer with mainline programming (POM) with a DCC Digital Center.

For the exact procedure read the appropriate chapter in the Intellibox Handbook.

Programming of long Addresses without Programming menu

If the programming is done with a center that does not support a Programming menu, the values for CV 17 and CV 18 must be calculated. Here is how address 2000 is programmed.

- Divide the address value by 256 ($2000/256 = 7$ Remainder 208).
- Take the integer result (7) and add 192.
- Enter the result (199) as the value for CV 17.
- Enter the remainder (208) as the value for CV 18.
- *Important:* Set Bit 5 of CV 29 to 1, so that the Energy Buffer uses the long Address.

CVs 1, 17, 18 and 29 are programmed along with the locomotive decoder.

CVs 252 - 255 can be locked with the Decoder-Lock (CV 15 and CV 16).

Programming protection (Decoder-Lock)

If several Energy Buffers are to be used via the same locomotive address but to be setup with differing configurations (e.g. lit wagons) the "Decoder Lock" function can be used for programming. While programming the locomotive address CV 16 is now also programmed with an index number, which different for each installed Energy Buffer.

If the CVs of an installed Energy Buffer are to change then CV 15 is set to the index number of the Energy Buffer that is to be programmed.

Note: The CVs of an Energy Buffers can only be programmed when value in CV 15 is the same as the value in CV 16. CV 15 on the other hand can always be programmed.

Afterwards only the CVs of this Energy Buffer can be changed by CV programming (POM) and not the CVs of the other Energy Buffers.

Programming with a Märklin Center

With a Märklin center all CV's can be programmed, but not read.

1. Switch the Center off and on.
2. Select the address of the decoder and switch the light on.
3. With the stationary locomotive (speed step 0) operate the direction change-over 5-8 times in quick succession, until the light blinks.
4. Enter the number of the CV that is to be programmed.
5. Briefly operate the direction change-over. The rear light flashes fast 4 times.
6. Enter the desired value for the CV e.g. a locomotive address.
7. Briefly operate the direction change-over. The rear light flashes slowly 4 times.

If further CV's are to be programmed repeat steps 4-7.

If programming is to be terminated switch the center to "STOP" or set the address to 80 and briefly operate the direction change-over.

Since programming with a Märklin Motorola digital center accepts only inputs of 01 to 80, the value "0" must be entered by entering the address as "80".

Page-Register for input of CV-Numbers larger than 79

CV addresses larger than 79 can only be programmed with the help of the page register, CV66. If CV66 has a value higher than 0, then the contents of CV66 times 64 will be added to every address entered. The entered value must lie in the range 1 to 64. When leaving Motorola programming mode the page register (CV66) is automatically reset to zero.

Example

If CV82 is to be programmed with a value of 15, then CV66 must first be programmed with a value of

1. Subsequently, CV18 can be programmed with a value of 15. The decoder places the value 15

into CV82, which is derived from multiplying the contents of the CV66 (in the example 1) by 64 (thus 64) and then adding the entered CV address (18)

Offset-Register for entering CV values greater than 79

CV values larger 79 can be programmed only with the help of the offset register. The offset register is CV65. If CV65 contains a value > 0, then all following programmed values are calculated by multiplying the contents of CV65 by 4 and adding the result to the entered value. When leaving Motorola programming mode the offset register (CV65) is automatically reset to zero.

Example

CV49 is to be programmed with a value of 157, then CV65 must first be programmed with the value of 25. Subsequently, CV49 can be programmed with a value of 57. The decoder places the value $4 * 25 + 57$ into CV49.

Note: When programming CV65 and CV66 the contents of the offset and page registers have no effect.

Table of individual CV's (Configuration Variables)

CV	Description	Value range	Factory default
1	Locomotive address	DCC 1-127 Mot 1-80	3
15	Decoder Lock (Programming protection)	0-255	0
16		0-255	0
17	Long address	1-9999	2000
18	17 = Long address high byte 18 = Long address low byte	192-231 0-255	199 208
29	Configuration DCC Standard Bit 5=0 Short Address (CV 1) Bit 5=1 Long Address (CV 17/18)	Value 0* 32	0
65	Offset-Register for CV Programming with a Motorola center	0-63	0
66	Page Register for CV Programming with a Motorola center	0, 4	0
252	StartUp Time for charging after power on (in seconds)	0-63	3
253	Switch motor power via the Goldcap off (in 10ms steps)	0-255	255
254	Configuration of Motor potential 0 = 7V / 1 = 8V	0-1	0
255	Version	-	-

Technical Data

Addresses: 1-9999 (long DCC Address)
Goldcap: 1 F, 2,7 V
Dimensions: 18,8 x 9 x 11,5 mm

Guarantee declaration

Each component is tested for its complete functionality before distribution. If a fault should arise within the guarantee period of 2 years, we will repair the component free of charge upon production of proof of purchase. The warranty claim is void, if the damage was caused by inappropriate treatment.

Please note that, according to EMV regulation the component may only be installed in vehicles which carry the CE logo.

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Our Contact Details:

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Mon - Tue - Thur - Fri from 14:00 to 16:00

+49 (0)900 1858327 When it is urgent ...

Premium Hotline: Mon – Fri 10:00 to 16:00

Service: In the event of a defect or failure send the unit together with the invoice and a short description of the fault back to us for repair.



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Electronic devices do not belong in household rubbish

Part No. 71 800

