Uhlenbrock Elektronik

Loco-Decoder 75 530

DIGITAL 2

Digital decoder for the Märklin-Motorola Format with load compensation for instrument motors

Use for equipped with instrument motors, e. g. Faulhaber or Escap.

Properties

Locos with coreless dc-motors can be operated digitally by using the 75 530 decoder. This decoder operates on both the old and the new extended Motorola data formats. It features a load-compensated motor output with a high frequency (17KHz) puls wide modulated voltage and two direction-dependent lamp outputs that are controlled by the ‚function/off' keys. When using the new Motorola data format, two additional ancillary decoder outputs, a switcher (shunter) speed range, an alternate address, and momentum can be called up or off by depressing the appropriate function keys.

Uhlenbrock decoders can be programmed by Intellibox or Märklin Control 80f. Decoder address, acceleration/braking rates, as well as starting and maximal motor voltage can be set and altered at every time.

Digital Operation

When running in digital mode, the loco works according to the parameters set by the user. These, as well as speed and direction settings, are permanently stored. This means that a loco will retain its settings and will continue to operate as before after the track power has been reestablished. Therefore, a loco can be run in standard automatic block systems.

When crossing over into an analog powered section, it will retain its speed and direction settings provided the track voltage is high enough. Changing of direction or speed is not possible though.

Analog Operation

In analog mode the decoder acts like a standard reverser. Loco will run at full speed when entering a digital section.

Setting the Operation Mode

Switching over from digital to analog mode is done as described in the programming instructions. A value of 01, analog code, is assigned to programming mode's function 08 . Factory set code value is 02 for digital operation.

Important: Lamp state set in digital mode will be retained in analog mode, i. e. when lamps should light in analog mode, they must have been switched on in digital mode.

A decoder can be set back to digital when in analog mode, by holding the transformer's control knob in overvoltage position for at least 16secs.

Assignment of Function Keys

The new Motorola Format allows for two additional ancillary outputs, switcher (shunter) speed range, an alternate loco address, and cutting in/out of momentum, accessible by the F1-F4 keys. The code value of programming mode's function 05 determines assignment.

The decoder is factory set to F1 controlling A1, F2 controlling A2, F3 void, F4 controlling momentum.

Important: Dip switch #2 on back of Märklin Control Unit 6021 must be set to "ON" in order to transmit the new Motorola format.

Compatibility

The decoder is compatible to Märklin's accelerating/decelerating circuit for their C90 decoder. This circuit was published in Märklin-Magazin 4/93 and 5/93.

Fitting the 75 530 Decoder

Motor Wiring

Connect the decoder's brown lead to chassis frame, the red one to pickup, the blue and green ones to the motor terminals.

Important: Coreless dc motors do not need RFI suppressor components. For proper decoder operation do not connect coils or capacitors between the decoder and the motor.
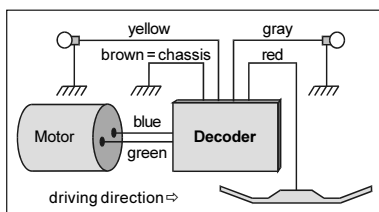
Connection of headlights

Connect the gray lead to the front light and the yellow one to the rear light. Both leads must be joined if direction-independent lighting is required.

The lamps' return must be wired to chassis or frame. When their return is connected to the decoder's black lead, a flicker-free lighting, albeit at a higher lamp voltage, can be achieved.

If the lamps do not correspond to the loco's direction, the wires at the motor terminals have to be changed over.

Connections

green - brush assembly
blue - brush assembly
brown - chassis
red - pickup shoe
gray - front light
yellow - rear light
black - + 20 V

Caution

Most of the models suitable for ac-operation are already equipped with 19V-lamps that are also compatible with digital operation. Should you find lamps for a lower voltage, replace them before changing over to digital operation.

Auxiliary Outputs

Outputs A1 and A2 may switch a smoke generator or interior lighting. Their wires have to be soldered to the decoder's pcb as shown in the adjacent sketch. Common return is the black lead.

Default setting is key f1 controlling A1 and f2 controlling A2. Changes are exerted by programming function 05's code value.

Fastening the Decoder

The decoder's size is such as to directly replace the original reverser and a hole is provided for the original fastening screw. Use the included adhesive tape in case this is not possible.

Putting into Operation

Check all connections with an ohmmmeter or a wiring tester.

Take extra care that no short between decoder and loco's shell and chassis may occur! Make sure that no cabling is caught when fitting the loco's superstructure.

> **A short circuit from motor brushes or ancillary outputs
> to pickup shoes, frame, or wheels may destroy the device!**

Programming of Uhlenbrock Decoders by Intellibox

The most comfortable way to program a decoder is offerd by the Intellibox. A menu-driven programming mode in plain english is provided. Programming is carried out by selecting the menu for load-compensated decoders (755/756, 75200, 75520 or 75530).

You find exact instructions in the Intellibox handbook.

Programming of Uhenbrock Decoders by LOKTOOL

This computer routine is used to program Uhlenbrock decoders by applying a Märklin central unit in connection with a Märklin interface. See reverse for a brief description.

Programming of Uhlenbrock Decoders with load compensation by a Märklin Central Unit

Follow exactly these steps when programming the decoder. **Do not push any other keys.**	

1. Preparation

▶ Connect a Märklin central unit together with a control 80/80f or a control unit to the track where the loco sits.

▶ Switch off power supply for at least ten seconds, then switch on again.
All digital signals that may possibly interfere have died away.

▶ Key in decoder address.
Every new decoder is set to 01.

▶ Hold knob in direction reversal position for at least 8 secs.
Decoder changes over to programming mode.

2. Calling up the Programming Functions

It does not matter whether a single function or several at a time are called up.
Functions not called up remain unaltered.
The loco's lamps will flash four times in acknowledge of a properly programmed step.

(Default setting)

2.1 Main Address — Default setting: 01

▶ Call up function: Key in 01 and shortly push knob to reverse – *a lamp will flash*
▶ Set address: Key in 01-80 and shortly push knob to reverse – *a lamp will flash*

2.2 Minimal Speed (min. speed for speed step 2) — Default setting: -

▶ Call up function: Key in 02 and shortly push knob to reverse – *a lamp will flash*
▶ Set value: Adjust knob to desired minimal speed.
Depress ‚function' and ‚off' keys consecutively when loco is moving - *it will stop and a lamp will flash*

2.3 Maximal Speed (max. speed for speed step 15) — Default setting: -

▶ Call up function: Key in 03 and shortly push knob to reverse – *a lamp will flash*
▶ Set value: Adjust knob to desired maximal speed.
Depress ‚function' and ‚off' keys consecutively when loco is moving - *it will stop and a lamp will flash*

2.4 Assignment of f1-f4 Keys (determines which function can be controlled by them) — Default setting: 16

▶ Call up function 05: Key in 05 and shortly push knob to reverse – *a lamp will flash*
▶ Set code value: f1 controls A1, f2 - A2, f3 - void, f4 - momentum - key in 16 and shortly push knob to reverse.
f1 controls A1, f2 - A2, f3 - switching (shunting) speed range, f4 - alternate addr. - key in 28, push knob.
f1 controls A1, f2 - momentum, f3 - switching speed range, f4 - alternate addr. - key in 29 and push knob.
f1 controls A1, f2 - A2, f3 - switching (shunting) speed range, f4 - momentum, key in 20 and push knob.
f1 controls A1, f2 - A2, f3 - void, f4 - void - key in 80 and shortly push knob to reverse.

2.5 Acceleration — Default setting: 01

▶ Call up function: Key in 06 and shortly push knob to reverse – *a lamp will flash*
▶ Set code value: Key in 01-32 and shortly push knob to reverse – *a lamp will flash*
01 = no momentum, 32 = maximal momentum; a value of 10 will render a realistic impression.

2.6 Deceleration — Default setting: 01

▶ Call up function: Key in 07 and shortly push knob to reverse – *a lamp will flash*
▶ Set code value: Key in 01-32 and shortly push knob to reverse – *a lamp will flash*
01 = no momentum, 32 = maximal momentum; a value of 10 will render a realistic impression.

2.7 Operation Mode — Default setting: 02

▶ Call up function: Key in 08 and shortly push knob to reverse – *a lamp will flash*
▶ Set code value: Analog mode - key in 01 and shortly push knob to reverse – *a lamp will flash*
Digital mode - key in 02 and shortly push knob to reverse – *a lamp will flash*

2.8 Reset — Default setting: -

▶ Call up function 10: Key in 10 and shortly push knob to reverse – *a lamp will flash*
Decoder is reset to factory default values: Address 01, acceleration/braking 01, digital mode.

2.9 Alternate address — Default setting: 02

▶ Call up function 11: Key in 11 and shortly push knob to reverse – *a lamp will flash*
▶ Set address: Key in 01-80 and shortly push knob to reverse – *a lamp will flash*

3. Leaving Programming Mode

▶ Key in 80 and shortly push knob to reverse.
Decoder returns to its normal operating mode.

Important

If a decoder will not react after a programming cycle, most probably its address has been altered inadvertently. Try all address settings, or Intellibox's or Loktool's address search function. Wrong settings may be corrected by resetting the decoder using programming function 10.

Technical Data

Address range:	1-255, accessible by Intellibox
	1-80, when employing another central unit
Max. motor current:	1.2 amp
Max. surge current:	2 amp
Ancillary outputs:	4 x 0.9 amp
Total load:	max. 1.2 amp
Size:	26.5 x 15 x 5 mm (1 1/16" x 19/32" x 3/16")

Factory set default values are: Extended Motorola format, primary address 01, alternate address 02, f1 controls A1, f2 controls A2, f3 void, f4 momentum.

Accessories

Item no. 71 500 Motor-Interference Suppressor Set.

Loktool 2.0 for Windows (TM)

contains these features:

Programming of decoders - comfortable input of all parameters, store in decoder profile database.

Address search function - for all decoders using the Märklin-Motorola data format.

Controller screen - six controllers are shown on a screen display.

Hardware requirements: A Märklin central unit and 6050/6051 interface connected to a PC. Programm will run on all PCs from 386-25 on under Win 3.x, 95/98 and NT.

www.uhlenbrock.de

Be it most recent information about Intellibox, a pricelist or a listing of authorized dealers, plus various publications to download, our website warrants your visit in every case.

Warranty Statement

Every item is fully tested for functioning before shipment. If a defect occurs within two years after purchase, the item will be repaired free of charge against presentation of purchase proof. Damages caused by overload or improper treatment are not covered by this warranty.

For EU only

Please note that decoders may only used in models carrying the EC conformance label.

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These are your advantages:
Two years' warranty
from date of purchase
Service
In case of an eventual failure please return the defective item to us for repair. Please include purchase proof and a short description of defect, as well as stating the decoder's address setting.
Hotline
In case of questions, we are ready to answer them for you!
Directly contact our technician: **(49) 2045 858327**
Mo - Fr except Wed 14:00-16:00 hrs CET, Wed 16:00 - 18:00 hrs CET

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