

Using the Page-Register to access CV addresses greater than 79

CV-addresses greater than 79 can only be accessed by the page-register. This is CV 66. If CV 66 has a value higher than 0, then the contents of CV 66 times 64 will be added to every address entered. The entered value must lie in the range 1 to 64. After programming, reset the contents of CV 66 to zero in order to avoid unwanted offsets.

Example

Consider CV 82 to be programmed for a value of 15. First CV 66 must be set to a value of 1. Now CV 18 can be set to a value of 15. The decoder will be programmed at CV 82, as the offset held in CV 66 will be automatically added to the CV address selected. If CV 82 is to be programmed with a value of 15, then CV 66 must first be programmed with a value of 1. Subsequently, CV 18 can be programmed with a value of 15. The decoder places the value 15 into CV 82, which is derived from the multiplying the contents of the CV 66 (in the example 1) by 64 (thus 64) and then adding the entered CV address (18).

Using the Offset-Register to set CV values greater than 79

CV-values greater than 79 can only be programmed by employing the offset-register. This is CV 65. It holds a value offset that will be multiplied by 4 and added to all CV values keyed in. After programming, reset the contents of CV 65 to zero in order to avoid unwanted offsets.

Example

Consider CV 49 to be programmed for a value of 157. First CV 65 must be set to a value of 25. Now CV 49 must be set to value of 57. The decoder will hold 157 in CV 49, because the offset of CV 65 will be multiplied by 4 (=100) and added to 57.

Observe: When programming CV 65 and CV 66 the mutual contents are ignored.

Märklin Braking Section

The decoder reacts to a Märklin braking section (brakes with analogue current on the track), if CV29 Bit 2 and CV49 Bit 7 are set to 1 (factory setting 1 and 0).

Factory Default Settings

The factory settings are address 03, 28 speed steps, and the decoder automatically recognizes DCC- and Motorola**-formats. In addition the decoder can be operated with a DC throttle.

Technical Data

Decoder type: Multiprotocol decoder 76150

Address range: 1-9999 (extended DCC address)
Max. motor current: 1,2 A
Ancillary outputs: 0,2 A each
Size: 22 x 15 x 3,8 mm

Hotline

In case of questions, we are ready to answer them for you!

Directly contact our technician: (49) 2045 858327

Mo - Fr except Wed 14:00-16:00hrs CET, Wed 16:00 - 18:00hrs CET

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.

Please send it to Uhlenbrock Elektronik GmbH • Mercatorstr. 6 • 46244 Bottrop • Germany

Damages caused by overload or improper treatment are not covered by this warranty.

For EU only: Please note that decoders may only be used in models carrying the EC conformance label.

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#46121

Multiprotokoll decoder PluX16

Digital Operation on layouts using either DCC- or Motorola**-Format for locos with DC-Motors

Suited for locos with digital interface PluX16.

PIKO

Properties

- Regulated Multi-protocol decoder for DCC, Motorola
- Suitable for DC and Bell armature motors up to 1 A
- Quiet motor running with 18.75 kHz control frequency
- 14, 27, 28, 31 and 128 speed steps depending on the data format
- Short (1-127) and long (128-9999) addresses
- NMRA compatible
- Minimum, maximum and middle speeds adjustable
- Main line programming (DCC)
- Shunting speed (half speed) switched with F3
- Acceleration/Deceleration switched with F4
- Direction dependent, dimmable lighting switched via F0
- 2 Special function outputs and light changing
- With SUSI interface for connecting sound modules or others for controlling of switchable special functions (f1-f12) with the PluX interface
- Address identification for controlling the LISSY mini transmitter module via the SUSI interface with the PluX-interface
- Reacts to DCC brake signal (e.g. from Power 3) "Brake diode" or braking section in DC operation.
- All outputs have short circuit protection
- Conventional DC operation with automatic switching between DC and digital mode
- All CVs programmable by digital devices with DCC and Motorola formats
- Programmable via register, direct CV or page mode in DCC operation
- With output for the pick up switch 71750
- Updatable using Flash memory

Description

This Locomotive decoder is a small efficient multi-protocol decoder. It can be operated in DCC, and Motorola** digital systems and also runs in DC analog mode. The operating mode will be detected automatically but can also be locked manually. The decoder operates with a frequency of 18.75kHz and is therefore well suited for DC and especially for Bell armature motors (e.g. Faulhaber, Maxon, Escap) up to a maximum power load of 1.2 A. Short burst start up currents to 1.2 A are tolerated.

Motor characteristics can be controlled either by setting the minimum, maximum and middle speeds or via various CVs for individual speed steps. Load regulation can be controlled via regulation parameters to a variety of individual motors. The decoder provides two direction dependent lighting outputs and two special function outputs operating via function key f1 and f2.

All outputs are set at the 16 pole PluX interface at the intended contacts. Via f1 and f2 these both special function outputs operate on the PluX interface at PIN 16 (f1) and PIN 18 (f2).

Using f3 and f4 a shunting mode for slow speeds and Start/braking inertia can be activated. The decoder can be programmed with the Intellibox, DCC and Märklin controllers. CVs can be programmed with all devices.

Fitting of the loco-decoder

Remove the shorting plug from the loco socket and insert the decoder plug into the loco socket.

Start-up

Check for proper wiring after installation using a wiring checker or an Ohmmeter. Make sure that the shell will not touch the unit and that no wires can be "caught" (pulled, cut) when loco shell is placed back again on the loco frame

Connecting a sound module

A sound modul only can be connected, if the loco includes a SUSI interface socket or if you use the pickup switch 71 750 that is fitted with a SUSI interface socket.

Insert the plug of the sound module into the SUSI interface socket.

Bit 1 in CV 49 must be programmed to value 1 and Bit 2 to value 0 (factory settings), so that the decoder transmits the address identification for controlling the sound modul via the SUSI interface.

Note: Now it is not possible to connect the LISSY Mini-Transmitter 68 400 on the SUSI interface.

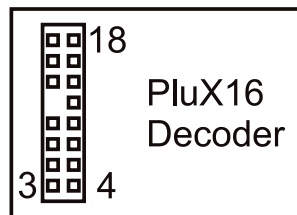
Connecting the LISSY mini transmitter module 68 400

Insert the LISSY mini transmitter plug into the SUSI interface socket. Then program Bit 1 in CV 49 to the value 0 and Bit 2 to the value 1, so that the decoder transmits the address identification for controlling the LISSY mini transmitter module via the SUSI interface.

Note: Now it is not possible to connect a sound module on the SUSI interface.

Assignment of the 16-pole PluX interface

Pin	PluX16 interface	Pin	PluX16 interface
3	SUSI - puls circuit	11	n.n. = coding
4	SUSI - data circuit	12	2-rail: rail right / 3-rail: slider
5	Decoder ground (behind rectifier)	13	Back light
6	20 V (behind rectifier)	14	2-rail: rail left / 3-rail: rails
7	Front light	15	Pickup switch output 1
8	Motor output 1	16	Special function 1
9	20 V (behind rectifier)	17	Pickup switch output 2
10	Motor output 2	18	Special function 2



Digital and analog operation

Digital operation is possible for both DCC- and Motorola**-formats. Address 3 has to be set and it works with 28 speed steps. On conventional layouts the decoder can be run with DC or AC (Märklin*). All operating modes are automatically recognized.

Programming

The base of all possible settings are the CVs as defined in the DCC standard. The decoder can be programmed by Intellibox, DCC central-units, or Motorola** central-units.

Programming by PIKO Digi-Power-Box and Intellibox

Regardless of the format which is to be used later, we recommend that you use the programming menu for DCC decoders to program the decoder.

The PIKO Digi-Power-Box provides a convenient input menu to help you to program DCC decoders. Long addresses do not have to be calculated laboriously, they can be input directly. The PIKO Digi-Power-Box / Intellibox automatically calculates the values for CV17 and CV18. Also the Bit5 of CV29 set to 1, so the decoder can use the long address. For the precise procedure please read the the PIKO Digi-Power-Box / Intellibox manual.

Special case: loco addresses 80 to 255 in Motorola data format with the Intellibox

The Intellibox supports an address range up to 255 in the Motorola data format. The addresses 1 to 80 can also be programmed with DCC programming without any problems. If however loco addresses above 80 are to be used, the loco address must always be programmed as described in the chapter "Programming with a Märklin control center". After programming in this way the CV1 contains the value 0 and the decoder uses the Motorola address above 80.

Programming by DCC Central Unit

Employ the programming menu of your unit to program the CVs in the mode it specifies. It is also possible to program on the main. Use the exact procedure as specified in the operating manual.

Programming of extended addresses without menu

Should your central unit not support extended address programming, you have to calculate the values of CV17 and 18 yourself. Here is an example of how to calculate these values for address 2000.

- Divide the address by 256 (2000:256 = 7 remainder 208).
- Add 192 to the quotient (7).
- Insert the result (199) in CV 17.
- Insert the remainder (208) in CV 18.
- **Important:** Bit 5 of CV29 must be set to 1 in order to activate extended address operation.

Calculating the configuration variables' values

CVs 29 and 49 are used to configure your decoder. The value is the sum of the desired functionalities per CV-table.

Example

Normal direction Value = 0
28 speed steps Value = 2
autom. analog-/digital recognition Value = 4
Speed table by CV2, 5, 6 Value = 0
Short address Value = 0
The sum is 6.
This value is the factory setting of CV29.

Bit	Function CV29	Wert
0	Normal travel direction Reverse travel direction	0 1
1	14/27 speed steps 28/128 speed steps	0 2
2	Only digital operation Auto digital/analog switching	0 4
4	Speed steps in CV2, CV5 and CV6 Characteristics read from CV67-94	0 16
5	Short address (CV1, Register 1) Long address (CV17 and CV18)	0 32

Programming by a Märklin* Central Unit

A Märklin* central unit can only program, but not read, any CV.

1. Switch off and back on.
 2. Select decoder's address and press F0 to have the headlights come on.
 3. Set speed to zero. Switch the driving direction 5-8 times, untill the lights are blinking.
 4. Key in the CV number like a loco address.
 5. Again, shortly move control knob to reversing position. The loco lights will quickly flash four times.
 6. Key in the CV value like a loco address.
 7. Again, shortly move control knob to reversing position. Loco lights will slowly flash four times.
- Repeat steps 4 - 7 for any other CV you want to program.

Finish the programming procedure by switching the central unit to „STOP“ or key in address „80“ and shortly move control knob to reversing position.

Because a Märklin* central unit accepts only inputs between „01“ and „80“, a value of zero must be keyed in as „80“