



## Configuration CVs

Next to the decoder address, configuration CVs are the most important CVs in a digital decoder. With the PIKO SmartDecoder XP F, these are CVs 12 and 29. A configuration CV usually contains basic settings of a decoder, like those that govern headlight behavior relevant to direction of travel. To calculate configuration CV values, consult the extended operating instructions found on the PIKO website.

### RailCom®, RailCom Plus®

RailCom® can be switched off or on in CV29. If RailCom Plus® is also switched on in CV28 (Bit7 = 1), the function decoder will automatically log on to a RailCom Plus® - compatible control system (like the PIKO SmartControl<sub>wlan</sub>). It will automatically display the decoder symbol, decoder name, and function symbols. RailCom Plus® technology eliminates the need to store model data in the DCC system or to assign the decoder an address (though you probably will want to change the address from 3).

### fits mfx®

The PIKO SmartDecoder XP F also works with the mfx® data format and is "fits mfx®"-certified. When used on an mfx® control system the function decoder will automatically log in with its symbol, decoder name and function symbols. The decoder's mfx® -compatible technology eliminates the need to store model data in the DCC system or assign an address to the decoder (though you probably will want to change the address from 3).

### Function outputs

A comprehensive description of all the possibilities of each function output (such as dimming or assigning effects) can be found in the extended operating instructions for the SmartDecoder XP F on the PIKO website.

### Easy Function Mapping (Factory Default Setting)

In **simple function mapping** (according to RCN-225 standards, when CV96 = 1), switchable effects like lighting can be freely assigned to function keys F0 to F12. The value written to a CV in function mapping determines the outputs that can be switched with the function key assigned to that CV. CVs 33 to 46 are used for this.

CV / Function key	Bit 7 (128)	Bit 6 (64)	Bit 5 (32)	Bit 4 (16)	Bit 3 (8)	Bit 2 (4)	Bit 1 (2)	Bit 0 (1)	Factory setting
33 / F0v	A6	A5	A4	A3	A2	A1	F0h	F0v	1
34 / F0r	A6	A5	A4	A3	A2	A1	F0h	F0v	2
35 / F1	A6	A5	A4	A3	A2	A1	F0h	F0v	4
36 / F2	A6	A5	A4	A3	A2	A1	F0h	F0v	8
37 / F3	A6	A5	A4	A3	A2	A1	F0h	F0v	16
38 / F4	A9	A8	A7	A6	A5	A4	A3	A2	4
39 / F5	A9	A8	A7	A6	A5	A4	A3	A2	8
40 / F6	A9	A8	A7	A6	A5	A4	A3	A2	16
41 / F7	A9	A8	A7	A6	A5	A4	A3	A2	32
42 / F8	A9	A8	A7	A6	A5	A4	A3	A2	64
43 / F9	A12	A11	A10	A9	A8	A7	A6	A5	16
44 / F10	A12	A11	A10	A9	A8	A7	A6	A5	32
45 / F11	A12	A11	A10	A9	A8	A7	A6	A5	64
46 / F12	A12	A11	A10	A9	A8	A7	A6	A5	128

### Switch off function outputs depending on the direction (CV96 = 1)

In CVs 97 (forward direction) and 98 (reverse direction), you can specify which function output (A1 – A4) should be shut off. If the particular function output was already switched on, it will automatically be switched off in the desired direction of travel.

CV 97:	Value	CV 98:	Value
Bit 0 A1 forward off	1	Bit 0 A1 backwards off	1
Bit 1 A2 forward off	2	Bit 1 A2 backwards off	2
Bit 2 A3 forward off	4	Bit 2 A3 backwards off	4
Bit 3 A4 forward off	8	Bit 3 A4 backwards off	8

Each case may be a combination value (a sum of individual values).

### Advanced Function Mapping (CV96 = 6)

Due to its enormous complexity, **extended function mapping** cannot reasonably be achieved by programming individual CVs. If you want to change **extended function mapping** you will need a PIKO SmartProgrammer device #56415). A Piko SmartTester (#56416) is also helpful in this area. For more information on **advanced function mapping**, please refer to the extended operation instructions on the PIKO website.

### Servo control

The decoder allows for the control of up to four servo motors. Assigning function keys to servos is done exclusively via extended function mapping.

Connecting servo circuits to the decoder requires electronics expertise.

For more information, please refer to the extended operating instructions on the PIKO website.

CAUTION: Soldering on the decoder and on the model should only be done by experienced hobbyists. The warranty does not cover damage done to the decoder by improper soldering.

### Factory reset

To restore the decoder to factory settings, program CV8 = 8.

### Programming

Configuration variables (CVs) form the basis of all decoder settings. This decoder can be programmed with the PIKO SmartControl<sub>wlan</sub>, PIKO SmartControl<sub>light</sub>, or other DCC or Mototola control centers. For more information on programming options, refer to the extended operating instructions on the PIKO website

### Updating the decoder

The PIKO SmartDecoder XP F can be updated with either the PIKO SmartProgrammer (#56415) or the PIKO SmartControl<sub>wlan</sub> (#55821).

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**NOTE:** This product is not a toy and is not suitable for children under the age of 14. Any liability for damage of any kind caused by improper use or failure to observe these instructions is excluded.

### Service:

Internet: [www.piko.de](http://www.piko.de)  
 E-Mail: [info@piko.de](mailto:info@piko.de)  
 Hotline: Di + Do 16-18 Uhr

Service: In the event of a defect, please send us the module with the proof of purchase (copy) and the completed complaint form, which you can find in our webshop under "Cancellation and returns".

### Warranty Statement

Each decoder module is fully tested before shipment. Nevertheless, should a malfunction occur within the 2-year warranty period, we will repair the module free of charge on presentation of the proof of purchase. This warranty is voided if the unit has been damaged by improper use. Please note that the conformity of the article is only guaranteed within products bearing the CE mark.

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