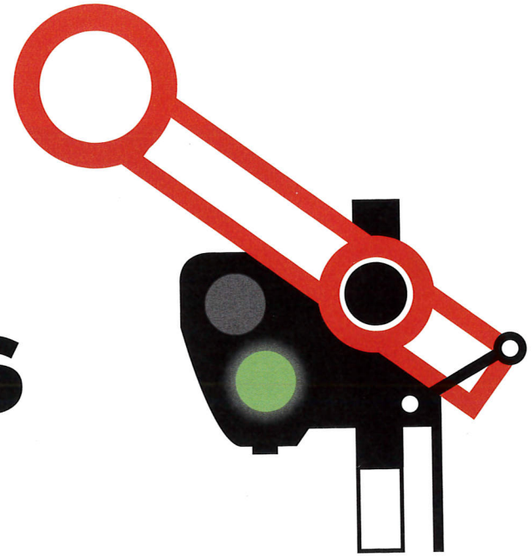


NEW M83 DIGITAL DECODER, PART 3

I think it's flashing

The two previous articles on our new m83 decoder described situations well known to the old hands who are already familiar with the older k83 digital decoder. However, the m83 can do a lot more.

The m83 decoder compared with its predecessor offers a number of additional options, and we want to go more deeply into these. One limitation of the k83 is that it only handles impulse switch functions. Only for as long as the corresponding button is pressed is the respective function operative. A short pressure is enough to change a turnout, while several seconds are needed for operating an uncoupler rail. But as soon as the button is released, this operation is over and during the operation, no other switch command can be handled by the system: an automatic switching operation in the background has to wait until it can be continued. The new m83 decoder works in a similar manner, but it can also do other things: if you want, there is a variation whereby individual behavior can be set for each of the four outputs. Each of these four outputs can be reset from momentary to continuous function. Furthermore, the behavior of the switch functions can also be individually set. Thus the functions are not simply turned on and off, but can also be adjusted to very individual behavior in intensity and action in the switching procedures.

Based on a few examples, we'd like to give you a brief idea here of what possibilities this opens up on the model railroad layout: lighting in factory buildings is often provided by fluorescent tubes so the typical flashing of the tubes can now be replicated without any bother. Further classic sources of "flashing" are welding arcs and camp-fires. Ideally in the latter case, a second effect would be superimposed: a steady base lighting would have a flickering effect superimposed by further LEDs. The flash effect can also be used on the model railroad layout for realistic portrayal of a speed-camera being triggered, or a photo flashlight. Accessory shops have a good selection of suitable figures.

The following effects are possible:

- **continuous feed to the user. This corresponds to the standard setting.**
- **Dimmer: the intensity of the switching can be set.**
- **Flashing light 1: the feed will be periodically switched on and off.**
- **Flashing light 2: this is exactly the opposite of flashing light 1. When this is lit, flashing light 1 is unlit and vice-versa.**
- **Flash effect: a very brief and hard switch-on of the respective user.**
- **Flash effect as two lights at very brief intervals, such as on emergency vehicles to draw attention to them.**
- **Lights flickering at random.**
- **Soft switch on and off of the user (zoom).**
- **Mars lights and gyralights: these are special light effects, known from their use on American locomotives.**
- **Simulation of the switch-on effect of a fluorescent tube.**
- **Simulation of the lighting behavior of an energy-saving lamp.**
- **With the instantaneous function it can also be determined for how long maximum and minimum a function will last, irrespective of how long the button is pressed. Very suitable for various sound effects.**

Provide a very special sort of flair: With the m83 decoder, the various lights in the station area can be switched individually.

These functions can be combined with switching contacts on your model railroad. Since a switching contact can actuate a number of events at the same time, the following scenarios are all possible: a reed contact on one hand is triggered by the train to secure a track block and at the same time on the other hand actuates the radar speed-trap installed somewhere totally different on the layout. Building sites can also be marked with flashing lights, as can an ungated grade crossing with a flashing warning cross. For this function there are two instantaneous contacts which pass on the actuation to the Central Station via the s88 decoder, switch the decoder on and off or trigger this function repeatedly for a preset length of time. On the Mobile Station this automation using roads set is not possible. Here we have to go down another path.

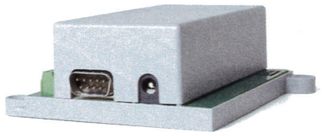
The possible scenarios on the model railroad layout are almost endless.

Tip: Connect up a bulb to one of the outputs and then program the various effects by way of a trial. If you want to connect up an LED in place of a 16-volt bulb, don't forget the protective resistor: for a diode designed for a supply of 2 V and an operating current of 20 mA, this is 820 ohms.

Small but crucial differences

What is the difference between an m84 and an m83 decoder if the m83 can now also switch with continuous current? The difference is in the detail: the m83 decoder itself supplies the current to the accessory connected. On the m84 decoder, →

Different data formats are designed to prevent unintentional reprogramming of the decoder.



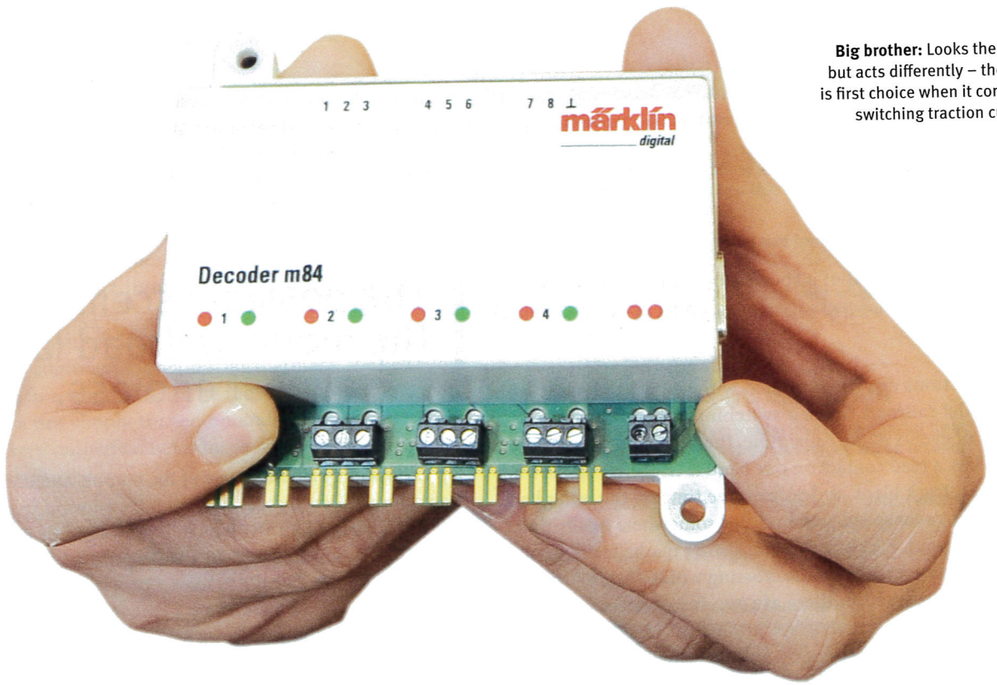
Unassuming box: Light effects as well can now be programmed with the new m83 decoder.

by contrast, we have outputs where we can decide for ourselves what supply voltage we switch on and off. So switching traction current is thus still one of the domains of the m84 decoder. Lighting supplies can very well be handled by an m83 decoder.

How effects are programmed

To be able to program the effects mentioned, we need a system which can address our decoder using the DCC format. The Central Station 60215 is just as suitable for this as the Mobile Station 60653. If the decoder is normally switched using the MM2 format, the decoder now has to be changed over to DCC to switch the corresponding effect. Using the same address, simply change the switch 10 (0) to "On".

Important: on the Mobile Station and the Central Station the data format for switching the corresponding solenoid article must of course be reset to DCC. This DCC reprogramming also functions while operations are going on (POM). That means it's not ⟶



Big brother: Looks the same, but acts differently – the m84 is first choice when it comes to switching traction current.

Make the layout more lively: Imposing lighting effects are an attraction especially when running in the dark.

Configuration of the outputs				
CV		Meaning	Value	Remarks
112	POM	Switch function output 1, red	0 – 18	switches the "red" output of the first turnout
113	POM	Pulse width	0 – 255	255 = 100 %
114	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
115	POM	Switch function output 1, green	0 – 18	switches the "green" output of the first turnout
116	POM	Pulse width	0 – 255	255 = 100 %
117	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
118	POM	Switch function output 2, red	0 – 18	switches the "red" output of the second turnout
119	POM	Pulse width	0 – 255	255 = 100 %
120	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
121	POM	Switch function output 2, green	0 – 18	switches the "green" output of the second turnout
122	POM	Pulse width	0 – 255	255 = 100 %
123	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
124	POM	Switch function output 3, red	0 – 18	switches the "red" output of the third turnout
125	POM	Pulse width	0 – 255	255 = 100 %
126	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
127	POM	Switch function output 3, green	0 – 18	switches the "green" output of the third turnout
128	POM	Pulse width	0 – 255	255 = 100 %
129	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
130	POM	Switch function output 4, red	0 – 18	switches the "red" output of the fourth turnout
131	POM	Pulse width	0 – 255	255 = 100 %
132	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s
133	POM	Switch function output 4, green	0 – 18	switches the "green" output of the fourth turnout
134	POM	Pulse width	0 – 255	255 = 100 %
135	POM	Period	0 – 255	time delay between the pauses; 1 = 0.05 s

Possible switch functions			
Value		Designation	Remarks
Button	Switch		
0	128	all off	
1	129	Dimmer	
2	130	Flashing light 1	
3	131	Flashing light 2	complementary flashing light to flashing light 1
4	132	Flash 1	flashlight
5	133	Flash 2	double flashlight
6	134	Random / flickering light	random sequence of interval / pulse
8	136	Zoom	soft switch on and off
9	137	Mars	type of flashing light
10	138	Gyralight	type of flashing light
13	141	Tubes	simulated fluorescent tubes
14	142	Energy-saving bulbs	simulated energy-saving bulbs
16	–	Max. switch	"Period" gives the max. switch time
17	–	Min. switch	"Period" gives the min. switch time
18 *	–	Min. switch with end switch	switch time is "Period" or until end-stop is reached

* Factory setting

The three successive CV-values have the following respective functions:

1 **Example CV 112 on red output of connection 1: here the type of effect is set. The various instantaneous functions are set over the inputs 1 to 18. Standard setting is the value 18. If the value 4 is set here, this output would immediately actuate a short, sharp switch-on. If a value between 128 and 142 is entered, it corresponds to effects 0 to 14 as a continuous function. The precise significance of the various values is found in the table above.**

2 **Example CV 113 on the red output of connection 2: here the pulse width is set. Values between 0 and 255 can be set. The value 255 corresponds to a pulse width of 100 per cent, or a continuous execution of this function.**

3 **Example CV 114 on the red output of connection 2: here the interval between the pause, or the repetition frequency, is set. Possible values are between 0 and 255. Each value represents an interval of 0.05 seconds. Value 10 thus represents 0.5 seconds, and value 100 gives 5 seconds. So the maximum you can set is 255 x 0.05 s = 25.25 seconds.**

→ necessary to connect up the m83 decoder to the programming track of the Central Station 60215 in order to reprogram it. In fact, the different data formats can very well be used as reprogramming protection, as while operating in MM2 format, the decoder cannot be unintentionally reprogrammed. To reprogram it, only this decoder is reset to DCC, so that no other decoder is unintentionally reprogrammed at the same time.

Each of the effects described can be set individually for each output and there individually again for each of the two settings. Use CV 112 to 114 to influence the red output from switch output 1, CV 115 to 117 the green output from the same switch output etc. (see table on page 19).

Important: In each operating mode, a reset will re-establish the original condition. Users of a Mobile Station should therefore be extremely careful with resetting an fx loco as this action would also have the same effect on a reprogrammed turnout decoder.

In the next issue, we will see how this programming is carried out on the Mobile Station 60653 or Central Station 60215.

Text: Frank Mayer; photos: Claus Dick

All the articles in this series can be found to download in the Internet under www.maerklin-magazin.de

Authentic: With the m83 decoder even the flickering of the fluorescent tubes in the loco depot looks realistic.