

Digital coupling MK1, MK2, UV1, MKS / 2, MKS / 3, MKS / 4, MKS / 5, MK, for HO

1:87 Execution: The / h after the article e.g. : MK1 / h stands for height adjustable, the Adapter KM1000 is not included, must be ordered separately. (see picture 2) Or it is already installed in the locomotive or in the wagon.

MK1 / MK1h = model coupling 1: The bracket is cut off on the MK2 (Fig. 1), then it is a MK1. The tongue (Fig. 1) lifts the bar of the attached vehicle to enable uncoupling.

No tractions are possible with the MK1 if the second vehicle attached also has an MK1. MK2 / Mk2h = model coupling 2: The bracket on the MK2 is functional for decoupling as well as traction.

UV1 / UV1h = universal coupling 1: This coupling works with all standard bracket couplings and the Roco universal coupling, in connection with direct current tracks. (Roco, Piko, Tillig, Peco, Fleischmann, etc ...)

MKS / 2, MKS / 2h = model coupling with 2-pole power supply: The function of the coupling is 2-pole current carrying.

MKS / 3, MKS / 3h = model coupling with 3-pole power supply: The function of the coupling is 2-pole current carrying.

MKS / 4, MKS / 4h = model coupling with power supply 4-pole: The function of the coupling is 4-pole current-carrying.

MKS / 5, MKS / 5h = model coupling with current carrying 5-pole: The function of the coupling is 5-pole current carrying.

MKS / 6, MKS / 6h = model coupling with 6-pole power supply The function of the coupling is 6-pole power supply.

MKS / 7, MKS / 7h = model coupling with 7-pole current carrying The function of the coupling is 7-pole current carrying.

MKS / 8, MKS / 8h = model coupling with 8-pole power supply: The function of the coupling is 8-pole power supply.

MK, MKh = model coupling without function: The coupling is only used to connect two vehicles, they can be separated using a decoupling track, etc.

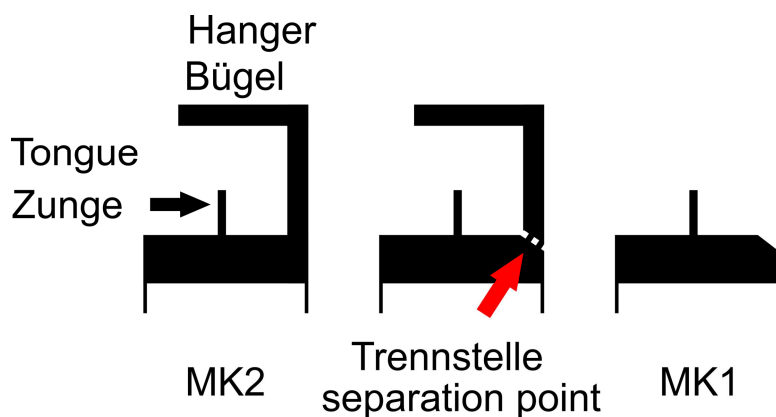


Fig. 1



Fig. 2 KM1000

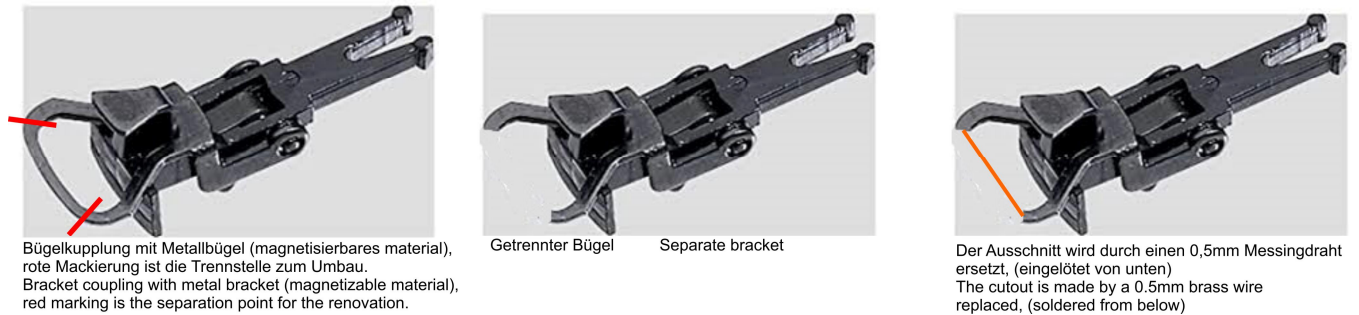


Fig. 3

All MK types are for all track types, with one restriction, magnetisable brackets on the attached vehicle should be exchanged with our brass brackets, or you can convert your bracket by cutting through the bracket on the front and soldering a 0.5mm brass wire over it (Fig 2).

The following manufacturers can use decoders with a coupling function for our coupling: ZIMO, TRAN, KÜHN, ESU, Lenz, the CV are in the manufacturer's operating instructions.

### **Inhalt**

- [1. Allgemeine technische Daten](#)
- [2. Allgemein \(Auspacken\)](#)
- [3. Einbau und Anschluss](#)
- [4. Anschluss am Decoder mit Zeitsteuerung](#)
- [5. Funktionsdecoder](#)
- [6. Inbetriebnahme, Programmieren](#)
- [7. Fahren](#)
- [8. Möglichkeiten](#)

1. General technical data	12-22V =
Voltage	
Power consumption	90 mA
Switch-on time	5 . max. 10 Seconds
Plastic coupling body	(can be heated up to 180 ° C)
Brass	Brass
Winding	0.04 mm enamelled copper wire (can be heated up to 80 ° C)
Mechanics	brackets, magnets
Coupling pocket	standard shaft according to NEM 362
Buffer distance	approx. 1.5 mm shorter than ROCO universal coupling
Two black strands	Short strands MINUS long strand PLUS

## 2. General (unpacking)

The coupling is packed in a plastic box. After opening the packaging, carefully remove the coupling and unroll the cables. Since a magnet is attached to the coupling, tools containing iron must not be used. The coupling is made of high-quality plastic, which can be loaded up to approx. 180 ° C. The coil is made of brass and is wound with a 0.04 mm enamelled copper wire (can be heated to approx. 80 ° C). The bracket is also made of brass and has a magnet. The clutch must not remain switched on for longer than 5 to a maximum of 10 seconds. If the device is switched on for a longer period of time, the coupling and possibly also the decoder may be destroyed. To prevent this, you should practice a little with the locomotive to avoid such damage.

**The manufacturer assumes no liability for improper installation or connection, or if the switch-on time is too long.**

## 3. Installation and connection

**LOCOMOTIVE:** Before installing the coupling, open the locomotive housing, remove the old coupling from the NEM-SCHACHT and install the model coupling (do not use metal tools) in the NEM-SCHACHT. Then lay the two cables carefully so that there are no chafing spots.

**WAGON:** Open the wagon and check whether there is a lighting kit or not. If there is a lighting set in the wagon, mount the decoder, see the operating manual of the respective manufacturer. Remove the old coupling from the NEM-SCHACHT and install the digital coupling (do not use metal tools) in the NEM-SCHACHT. Then lay the two cables carefully so that there are no chafing spots.

**In the case of wagons and freight wagons without lighting:** Open the wagon if you want, install the lighting kit from the respective manufacturer (lighting not required). The best way to draw power from the wheels is to use the brass plates etched by us, then connect the decoder according to the manufacturer's operating manual. Then remove the old coupling from the NEM-SCHACHT and install the model coupling (do not use metal tools) in the NEM-SCHACHT.

## 4. Decoder with time-controlled coupling output

([www.tran.at](http://www.tran.at), [www.zimo.at](http://www.zimo.at), [www.esu.com](http://www.esu.com))

Decoder with time-controlled coupling output (see manufacturer's operating manual). Solder the long cable of the coupling (PLUS) to the common positive pole of the decoder in blue. Solder the short cable of the coupling (MINUS) to the function output of the decoder (mostly green / brown cable). Then isolate both cables.

**For more detailed information, please refer to the respective manufacturer of the decoder.**

**5. Function decoder Connection of the function decoder (see the respective manufacturer's operating manual).** Solder the long cable of the coupling (PLUS) to the common positive pole of the decoder in blue. Solder the short cable of the coupling (MINUS) to the function output of the decoder. Then isolate both cables.

**6. Commissioning, programming the coupling:** a) Before programming the coupling on the decoder, connect a light bulb (12-14 volts) to the blue cable and to the green / brown cable of the decoder when programming. If everything works according to plan, then install the coupling in the correct position (coupling nose up).

### **Decoder with time control or clutch waltz Ct electronics (Tran) with time control:**

Stand still with the locomotive in the direction of travel, drive back a little, approx. 1 cm, switch direction again (do not drive), press the F key, the clutch is lifted, now you have 3-4 seconds. Time to go away.

CV 55: 0 input

CV 56: Enter between 30 and 40 (approx. 4 seconds), higher values can cause damage.

CV 58: 4 Enter (is for additional function F1 green cable, one coupling), 12 (is for additional function F1 + F2, two couplings). F2 is purple wire

### **Ct-Elektronik (Tran) with clutch waltz**

You stop with the train, switch the function key on and off again, only now is the automatic uncoupling process called up. The locomotive sets back a little, changes the direction of travel, the clutch is raised, the locomotive drives away. To use this function you have to change the following CVs.

CV 35 = 0 so that the function output cannot be activated with the F1 key

CV 36 = 0 so that the function output cannot be activated with the F2 key

CV 147 = 15 speed step for relieving (1-128)

CV 148 = 25 speed for driving away (1-128)

CV 149 = 8 time to relieve, 1 corresponds to 0.1 sec., (1-255)

CV 150 = 15 time when driving away, 1 corresponds to 0.1 sec., (1-255)

CV 151 = 3 is for function key 3 (1-12) key that is used for uncoupling.

CV 152 = 8 what an AUX output when driving forwards leads to the rear of the clutch (1,2,4,8,16 ..) bit counting

CV 153 = 4 what an AUX output when driving backwards leads to the clutch at the front (1,2,4,8,16 ..) bit counting If variant 1 and 2 are used, the coupling of variant 1 must always be switched off after decoupling, otherwise variant 2 does not work, the locomotive only drives back and forward but it does not decouple.

### **Zimo with time control**

Stand still with the locomotive in the direction of travel, drive back a little, approx. 1 cm, switch direction again (do not drive), press the AUX key, the clutch is lifted, now you have 3-4 seconds. Time to go away.

#### **For function 1 green cable (one coupling):**

Enter CV 127: 48

Enter CV 115: 70 (approx. 4 sec.)

For function 1 + 2 enter green + brown cable (two couplings)

CV127: 48 F1

CV128: 48 F2

CV115: 70 (approx. 4 seconds)

**Zimo with a clutch waltz:** You stop with the train, switch on the corresponding AUX key, the locomotive decouples automatically. For function 1 + 2 green + brown cable, (two clutches):

CV127: 48

CV128: 48

CV115: 70 (approx. 4 sec)

CV116: 168 for clutch waltz

**Coupling function ESU Automatic function: With the F1 or F2 key an automatic decoupling is activated.**

**If the coupling is only connected to F1, both couplings can also be connected to one output.**

CV275 = 28 Function type

CV277 = 28 switch off the AUX key

CV278 = 10 Tuning (brightness)

CV246 = 5 Speed step

CV247 = 60 Push-off time

CV248 = 20 Pressing time

The CV's from 277. 248 are variabel 0-255

**If the coupling is only connected to F2, both couplings can also be connected to one output.**

CV283 = 28 Function type

CV285 = 28 switch off the AUX key

CV286 = 10 Tuning (brightness)

CV246 = 5 Speed step

CV247 = 60 Push-off time

CV248 = 20 Pressing time

The CV's from 285 . 248 are variabel 0-255

**7. Driving Before starting the big shunting operation, you should practice the coupling process with just one locomotive for a while. Exercise suggestion:**

**a) Locomotive wagon**

Bring the train unit to a standstill, then change direction and push the locomotive a little on the first wagon so that the clutch is relieved. Then again Change direction, activate the clutch and drive off at the same time, deactivate the clutch after a few centimeters of travel. If you don't need more than 4 seconds for this process, you have practiced enough for the large shunting operation.

**b) wagon-wagon:**

In the case of wagons, proceed as follows: enter the address of the function decoder, press double or multiple, for the Shunter also. Otherwise the process is the same as in point a.

**8. Possibilities:**

**a) Terminal station**

When the passenger train enters the terminus, stop the train. Press the locomotive a little against the first wagon, then change the direction of the locomotive. Then start the locomotive and activate the clutch at the same time. After decoupling, deactivate the clutch and stop the locomotive after a few centimeters of travel. At the other end of the train, take another locomotive and couple it to the set, then change direction and wait for departure.

**b) maneuvering**

Let the freight train enter the freight yard - stop the locomotive - change direction. Press the locomotive against the first wagon - again Change of direction - start the locomotive and activate the clutch at the same time. After decoupling, deactivate the clutch and put the locomotive into the Drive the siding.

■= Digital coupling

□= Universal coupling (ROCO)

**Figure 4 for comparison:**

Drive up the shunting locomotive and couple it to the freight train. Then enter the multiple traction of locomotive 1 (address 1) and tank wagon 2 (address 2). (For programming the multiple traction, see the operating manual of the respective digital center manufacturer.) Change direction of locomotive 1 and press it against the wagons, bring change of direction and tank wagon address 2 into the foreground. Then set the locomotive in motion and at the same time activate the coupling of the tank wagon. After successful decoupling of tank wagon 2, deactivate the clutch and drive the train (locomotive 1, boiler 1, boiler 2) to a suitable location (e.g. refinery, etc.). Switch off the traction of tank car 2, then disengage locomotive 1 and drive back to freight train 1.

Attach locomotive 1 to container wagon 1 on freight train 1 - enter 2 (address 2) in container wagon and switch to multiple traction. Then change direction of locomotive 1, drive off and at the same time activate the coupling of container wagon 2. After uncoupling container wagon 2, deactivate the coupling and drive the train (locomotive 1, container wagon 1, container wagon 2) to the appropriate place (e.g. port, container, unloading ramp, etc.). Switch off the traction of the container wagon 2, then disengage the locomotive 1 and drive back to the freight train 1. Güterzug 1

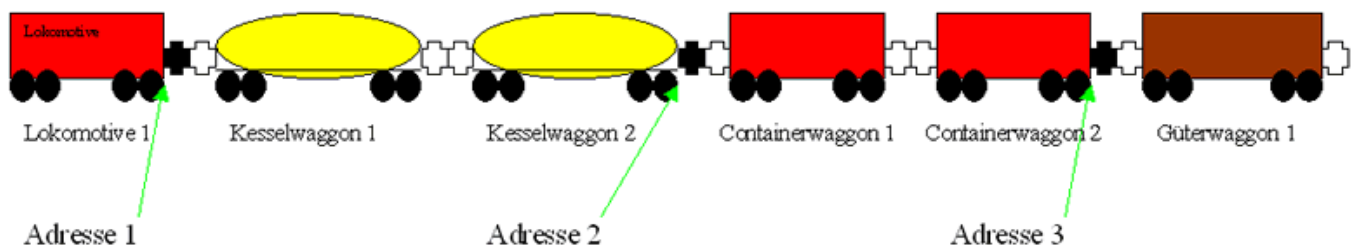


Fig 4

With digital centers without a traction function, the function decoder in the freight train or passenger train can only be saved to the same address as the shunting locomotive and the function output for the coupling of the freight or passenger car can be assigned to a different function button. A digital coupling can also be installed in every freight or passenger car with four axles (better rail contact) (see Figure 5).

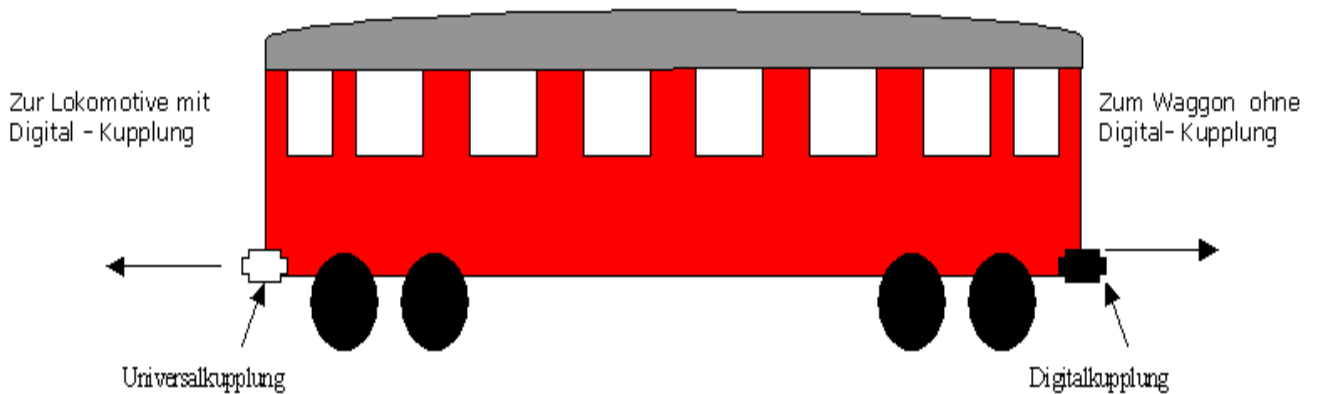


Fig 5

## Conducting couplers, 2 to 8 poles, what do you need for what.

**MKS/2, MKS/2h = model coupling with power supply 2-pole:** The function of the coupling is 2-pole current carrying. Use in wagons if there is a decoder in the first wagon or control car and the wagons are illuminated by a decoder. Plus (blue cable and decoder function output (green or brown cable)).

**MKS / 3, MKS / 3h = model coupling with 3-pole power supply:** The function of the coupling is 3-pole current carrying. Use in 4-axle wagons, for example. Through wagon with red tail lights on both sides. The decoder for the red rear lighting (white or yellow cable) is located in one of the two end cars. Then the 3-pole coupling is used, one decoder plus (blue cable), the second pole is for the interior lighting (green or brown) and the third is for the red rear lighting in the other final car (can be yellow or white).

**MKS/4, MKS/4h = model coupling with 4-pole power supply:** The function of the coupling is 4-pole current-carrying. Use in 2-axle wagons, 2-axle vehicles have a poor power take-off, so one of 2 wagons should share the power consumption of the wheels with each other. To connect, you need a 4-pin coupling. Connect the two right power take-offs of the first car with the right power take-offs of the second car via the coupling. The same with the left side, so 2 poles of the coupling are occupied. The decoder comes to the power take-off of the first wagon, then it is illuminated and via the third and fourth pole of the coupling we put Decoder Plus (blue cable and function output green or brown cable) to the second wagon, you are satisfied with the result without that. If the two wagons flicker, you can use the 2-pin coupling to direct the train to the next wagon, etc.

**MKS/5, MKS/5h = model coupling with power supply 5-pin:** The function of the coupling is 5-pole current carrying. Use in 2-axle wagons, if these have a tail light, a 5-pin is required on the other end wagon to switch the red tail light. Otherwise the same structure as with the 4-pin coupling.

**MKS/6, MKS/6h = model coupling with 6-pin power supply:** The function of the coupling is 6-pole current carrying. This coupling is used on the VT98 or similar 2-axle railcars with control cars. As with the 2-axle passenger car, the power consumption of the motor car and the control car are connected to one another by 2 poles of the coupling. The third pole is led through the set for the decoder plus (blue cable). The fourth as well as the fifth pole is red / white for the front lighting. The sixth pole for interior lighting.

**MKS / 7, MKS / 7h = model coupling with power supply 7-pin:** The function of the coupling is 7-pole current-carrying. This coupling is used between 2 locomotives if they always stay together, but the second locomotive has a motor, light and a digital coupling. The power consumption of the two locomotives is connected to the first two poles of the coupling. The third pole is for the decoder plus (blue cable) of the second locomotive. The fourth and fifth pole is the red / white headlight. The sixth and seventh poles are for the motor of the second locomotive, both locomotives should be of the same type and manufacturer.

**MKS / 8, MKS / 8h = model coupling with 8-pin power supply:** The function of the coupling is 8-pole current-carrying. This coupling is actually used for the same locomotive combination as in the description of the 7-pin coupling, only if the locomotives have a digital coupling you need the eighth pole on the second locomotive.

Of course, the user can also use the coupling differently, the variants we have described are only one way of showing the user what one can do with what kind of coupling.

The decoders in the wagons are function decoders, check beforehand what you want to switch so that the decoder has enough outputs.