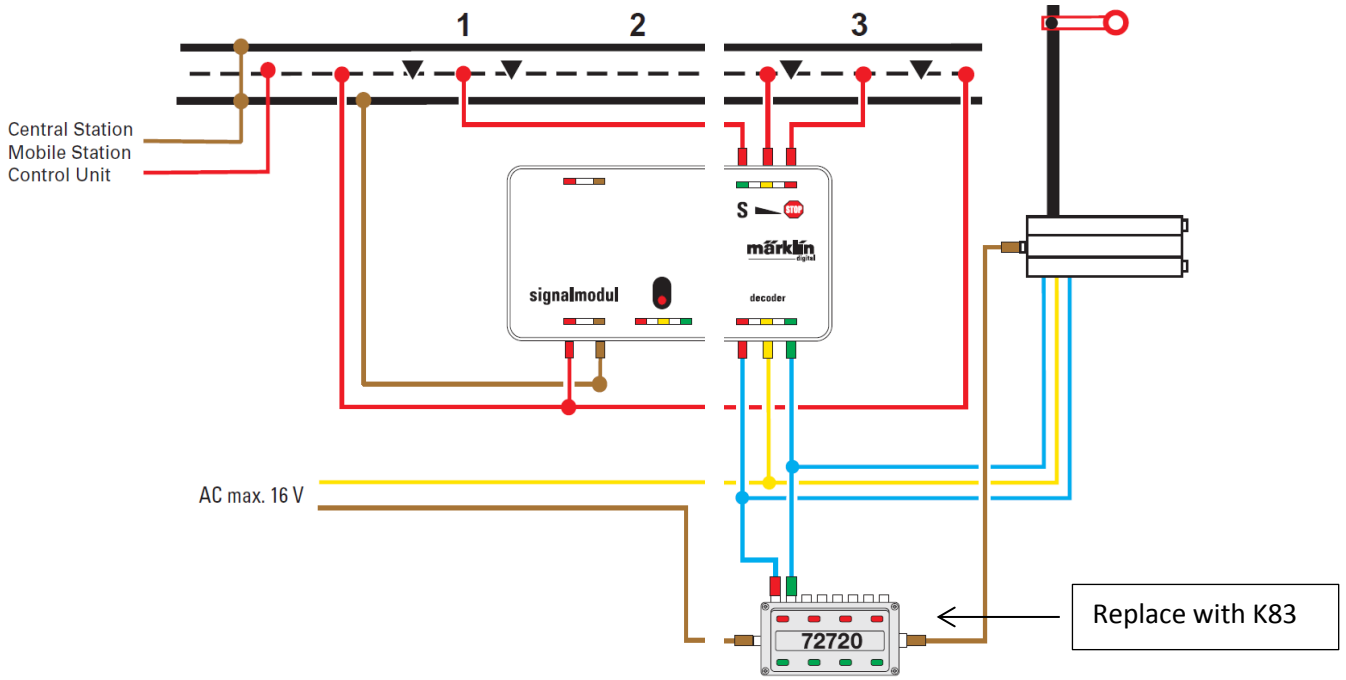
CS2 automation (4 blocks with 3 trains)

	Memory route A	Memory route B	Memory route C	Memory route D
What shall happen when sensor goes off	S2 (Ein unchecked)	S3 (Ein unchecked)	S4 (Ein unchecked)	S1 (Ein unchecked)
	Brake 2 off	Brake 3 off	Brake 4 off	Brake 1 off
	Brake 1 on	Brake 2 on	Brake 3 on	Brake 4 on

Concept; Initial all Brakes sections will have power off. When the last wagons in train "Ian" e.g. leave contact track "S2" the sensor goes from on to off. This activates Memory route A as per above table. The CS2 will now switch off power section to the block where the train just left (and this will not be powered on before the train is safely in the next block). It will also power on Block 1 (meaning awaiting train or an approaching train is clear to proceed (as Blok 2 is now free).



Characteristics

The Viessmann digital brake module 5232 is designed for use with a Maerklin-Motorola digital system. It serves to stop trains in front of a signal showing a “stop” aspect.
The brake section works like this: whenever the signal shows “stop”, the digital voltage is replaced by DC, slowing down the train until it stops. The electronic circuitry also assures that there is no short circuit between DC and digital supply when an engine enters the brake sector.
Important: Not all decoders for Maerklin-Motorola detect the brake mode (e.g. the Maerklin decoder c80). In some decoders this feature has to be activated by programming! Please refer to the manual of your mobile decoder to ascertain if the brake mode is supported.

Setting up the brake sector

The brake sector is a stretch of isolated track ahead of a main signal and is in fact controlled by the signal. One contact (opening the circuit) on the signal is all you need such as is available on the new Maerklin daylight-signals and semaphore signals. The brake sector consists of two or three isolated sectors (insulated centre contacts).
The first sector is for “normal running”, after that comes the “brake sector” and finally in front of the signal is the “stop sector” (refer to figures 1 and 2).

Wiring the Digital Braking Module

The red and brown sockets of the brake module are wired to the corresponding sockets of the central unit or a booster. The socket “S” is wired to the stop sector (figure 1) or to the signal contact for switching the track supply (figure 2). The digital brake module detects the signal aspect via socket “S”. “F” is wired to the normal running sector and “B” to the “brake sector”. All three sectors have to be isolated from each other by putting some insulating tabs between the connectors of the centre track supply (figures 1 and 2 - insulations marked by triangles).
Use paper for Maerklin M-track and the Maerklin insulating tabs 7522 for K-track respectively 74030 for C-track.

IMPORTANT: If you operate trains with several electrically connected centre pick-ups (e.g. ICE train or push-pull operation), then the “running sector” has to be long enough to assure that all centre pick-up contacts are with the sector, before the first pick-up contact reaches the “brake sector”. Otherwise there will be a short circuit.
If the “running sector” is shorter than the longest train with illuminated coaches, then you have to install the Märklin „pick-up-ski lifter“ 385550 (M-track), 385580(K-track), 204595 (C-track) in order to prevent any centre pick-up contact to bridge the circuit from one sector to the other. This is only necessary once the decoder has switched to “braking mode”. Otherwise it could cause a short circuit and the central unit may shut down operations.
If you do not use a “stop sector” due to space limitations then you have to make sure that all engines are set to a value of deceleration that stops them reliably within the “braking sector” (risk of short circuit).

Function

The module is not active when the signal is set to the “proceed” aspect. Any train can pass the signal without stopping.
If the signal is set to “stop” the module is activated by the lack of track voltage. If a train enters the “running sector” it will continue until it reaches the “brake sector”. The integral occupancy detector detects the train and switches both “running sector” and “brake sector” to DC supply. That in turn causes the mobile decoder to slow down the engine like the prototype until it stops.
The “stop sector” assures that any train stops reliably due to the lack of power in this sector. This is important in case a decoder is set with too little deceleration or the train was travelling too fast.
You can also utilise the “stop sector” to stop every train exactly at the same spot. The disadvantage is that the headlights will extinguish while in the “stop sector”, because there is no current.
Once you set the signal to “proceed” then the digital brake module switches back to the digital track voltage and the train continues its journey.

Detection of trains

The digital brake module detects any vehicle drawing at least 3 mA current corresponding to a resistance of 5 kOhm max.. The driving trailer of any push-pull train should be equipped with a pick-up-ski and a 4.5 kOhm resistor if there are no other electrical loads such as headlights or interior lighting

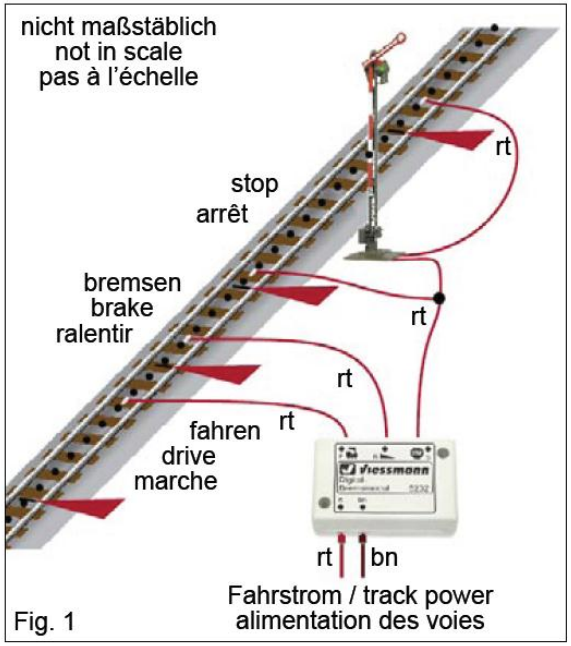


Fig. 1

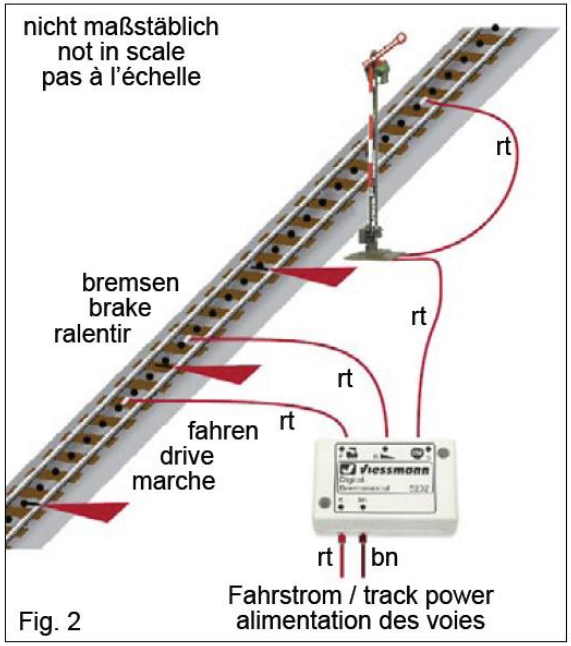


Fig. 2

Making contact tracks (photos from French Fabrice) with K-tracks