

LGB 20220 (RhB ABe 8/12 - Allegra)

Backfitting a “RhB ABe 8/12 Allegra” train with a eMotion XLS sound decoder. (Pict 1)
This train has different front-, interior and destination display lighting.



Pict 1: LGB 20220 “RhB ABe 8/12 Allegra”

Needed parts:

1x 8230022 XLS-Sound decoder: (incl. speaker + Adapter-cable set)

Important details:

- Programm your decoder before installation (Minimum loco address)

Because of the many electronic parts in the train maybe programm will not work properly.

- Through the decoder in the middle and long motor cables coils are mounted at the motor.

This can lead to a loss of velocity when driving under greater load.

The Fa. Massoth gives here NO recommendation of removal because we don't know the consequences !

- This backfitting plan shows only a simple light function:

Interior light and destination display lighting are always on, the front light is 3x white + 1x red switchable.

Further light functions will be proofed and will show in an additional backfitting plan.

Installation:

- On middle waggon remove careful both gaiters (Pict 2)
- Open the middle waggon with removing the 14 marked screws in the bottom (Pict 2)
- Remove careful the chassis.



Pict 2: opening the middle waggon

Remove the analogue bridge-PCB from interface.
Plug in both adapter cables as shown in Pict 3 to the interface.



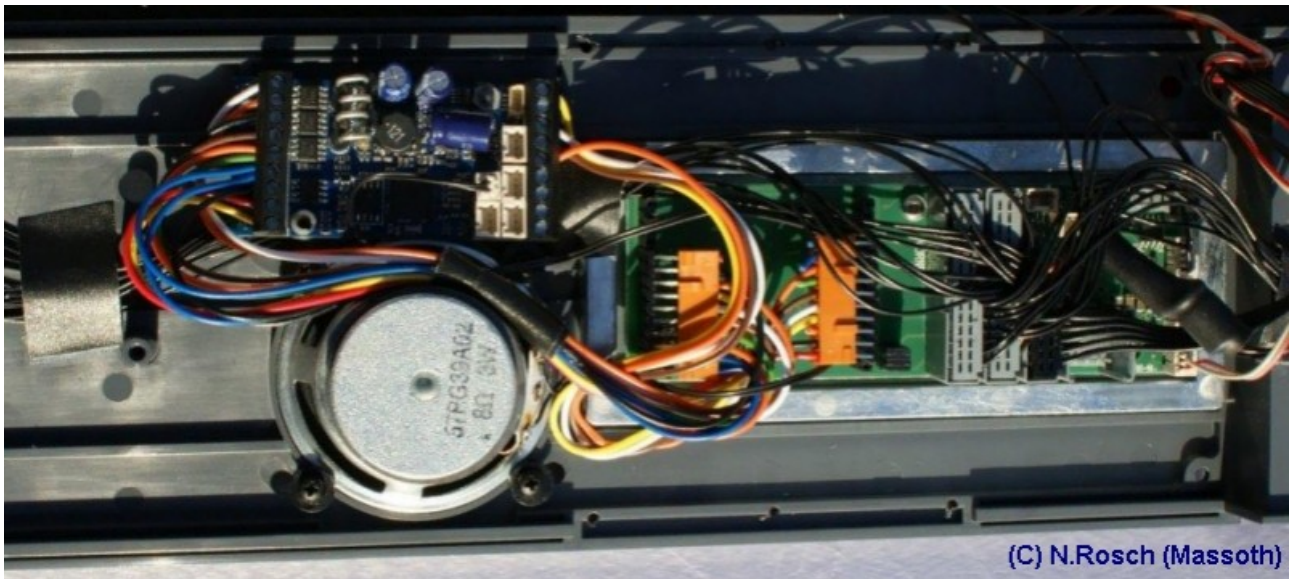
Pict-3: Connection of the adapter cable.

Screw the cables as shown in Pict 4 into the decoder.
Ensure the correct assignment of the two interface cables !

Schnittstelle	XLS	(C) N.Rosch (Massoth)	XLS	Schnittstelle
S1 / 6 (weiß)	+24V	+24V	+24V	S1 / 7 (gelb)
S1 / 8 (orange)	GND	GND	LI-I	---
S2 / 26 (schwarz)	Li-V	LI-U	F2	S2 / 23 (weiß)
S1 / 5 (braun)	Mot+	MOT+	F3	S2 / 22 (braun)
S1 / 3+4 (orange+grün)	GL+	GL+	F4	S2 / 20 (orange)
S1 / 1+2 (blau+blau)	GL-	GL-	F5	---
S1 / 9 (schwarz)	Mot-	MOT-	BC	BC
S2 / 27 (rot)	Li-H	LI-H	1 Reed	K1
S2 / 24 (gelb)	FA1	F1	2 Reed	K2

Pict-4: Connection of decoder

Screw the speaker into the appropriate opening
Plug the speaker cable in the 2-pole connector of the decoder.
Mount the decoder on the waggon-bottom (e.g. with a M3-screw)



Pict-5: Fitting the decoder.

Reassemble provisional the waggon carefully.

Couple the middle waggon with both end waggons (Direction 2/2 + 2/3+4 take care of windows)

Check your retrofit before you reassemble all.

Programming:

All CV's are preset for this loco.

Don't change the lightness over the decoder!

Additional hints:

Take care that no cables are pinched during assembly or damaged by screws.

Attention: A wrong wiring or programming can destroy electronic components!

With this connection more cables as needed are clogged.

The two reed contacts, for example, are only standard on the later digital version 20225.

Light function: LGB 20220 (RhB ABe 8/12 - Allegra)

Extended conversion of a "RhB ABe 8/12 Allegra" multiple unit with eMotion XLS and additional lighting:

The vehicle has various front, interior and train destination lights.

Additional parts required:

1x 8312071 : SUSI connection cable

2x male connector 1 pole

Retrofit:

Cut the cable to the appropriate length.

The two outer lines are not required.

Carefully remove the two inner wires. (The wires travel easily out of the plug).

Solder the two male connectors.



Figure-1: Massoth SUSI Cable

Plug the SUSI cable into the SUSI socket of the XLS decoder.
Insert the two male connectors into the interface as shown in Figure 2.

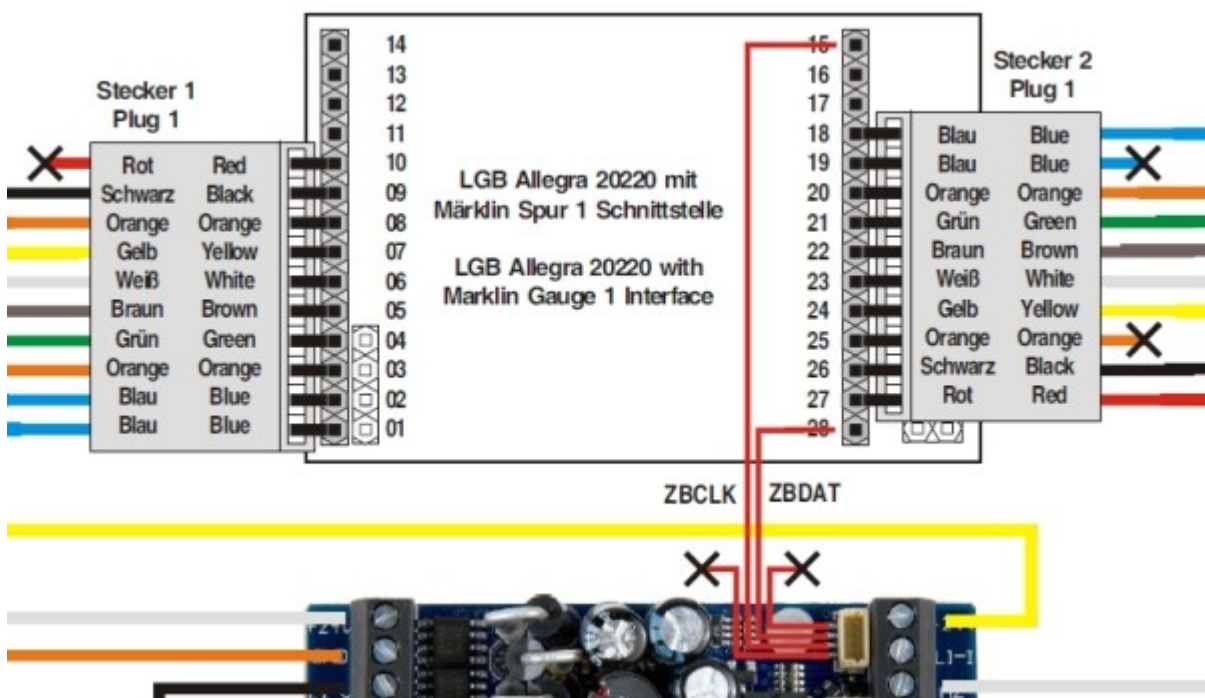


Fig. 2: Connection of SUSI cable in Märklin interface

Functional description:

Special software updates have been developed for the eMotion XLS sound decoder to activate the additional lighting functions.

The XLS decoder must contain software version 2.84 to be able to switch these functions.

Previous versions can be updated, but the decoder must be removed from the train.

The power consumption of the Allegra is too high to perform a safe update.

In CV49 the value 146 must be programmed to activate the special Märklin “SUSI-Bus”.

The additional functions can be freely programmed to buttons 1...28 and the light function.

This means that even control panels with only 8, 12 or 16 functions can switch the lighting:

The following CV values can be programmed for the key assignments of the light functions :

CV37 : Interior lighting (7 = F7)

CV38 : High beam front and rear (8 = F8)

CV39 : Ceiling cab lighting (17 = F17)

CV40 : Control desk lighting (0 = light button)

CV41 : Switch to white taillight (15 = F15)

CV42 : Emergency signal lighting (16 = F16)

CV43 : Rear light completely switched off for traction (30 = inactive)

CV44 : Front light completely switched off for traction (30 = inactive)

The delivery status and our recommended basic setting are shown in brackets.

In each of these CV's the values 0 .. 28 and 30 can be programmed.

0 = Switching with the light button

1 ..28 = Switching with the function key 1 .. 28

30 = Function deactivated, it is not switched with any key.

In addition, the following values should be changed in the XLS decoder:

CV59 = 0 : Shunting mode inactive

CV140 = 0 : Sound vacuum pump inactive

CV142 = 14 : Sound Curve squeaking on key 14

Important note : Switching of the extended light functions is NOT possible via "serial pulse" !

Programming suggestion for control panels with only 8 functions (e.g. LGB-MZS):

CV37 = 0 : Interior lighting with light button

CV38 = 7 : High beam with F key 7

CV39 = 0 : Driver's cab lighting with light button

CV40 = 0 : Console lighting with light button

CV41 = 8 : Red/white taillight switchover

CV42 = 30 : Emergency signal inactive

CV43 = 30 : Rear light completely switched off for traction (30)

CV44 = 30 : Front light completely shut off