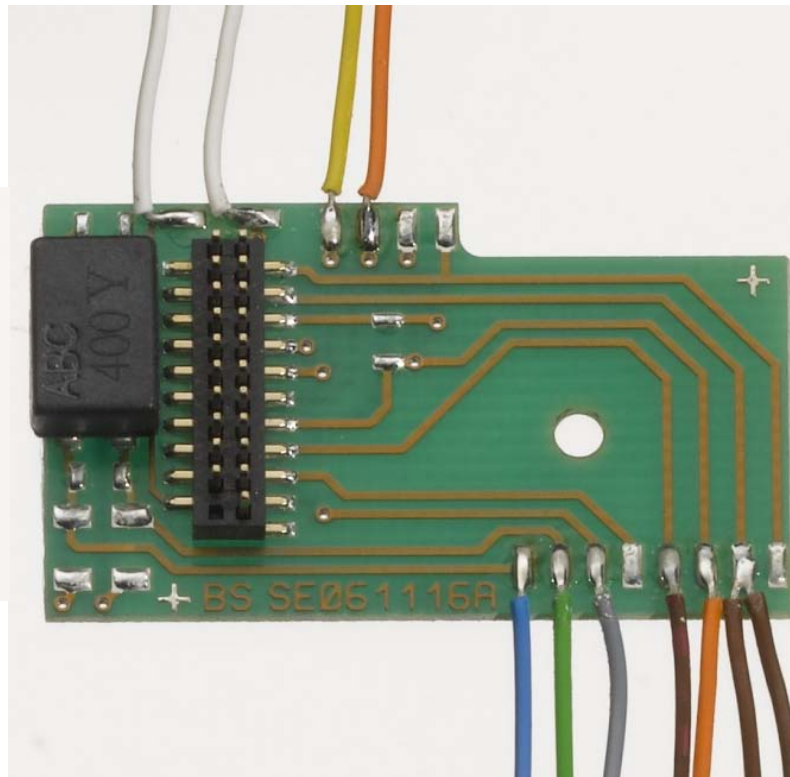
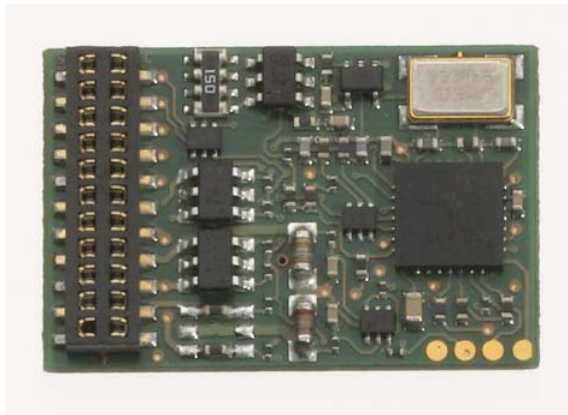


mLD = märklin Locomotive Decoder 60942

Conversion Decoder:

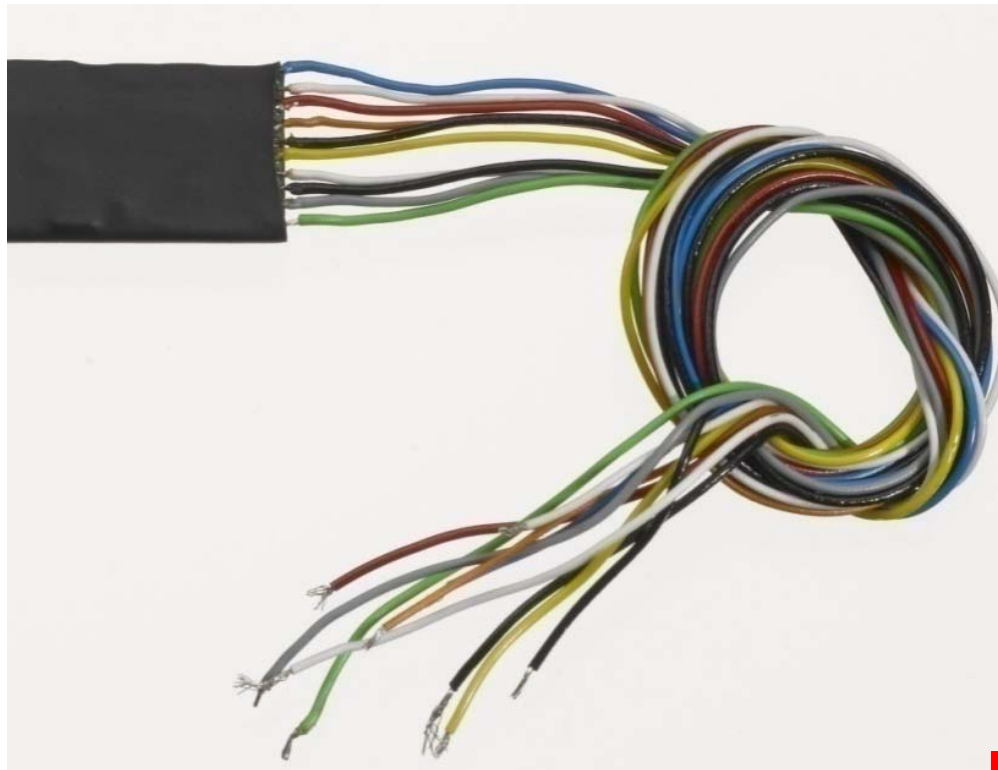
- Decoder without sound, with connector
- Connector circuit board with wiring harness
- Complete range of functions



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Conversion Decoder:

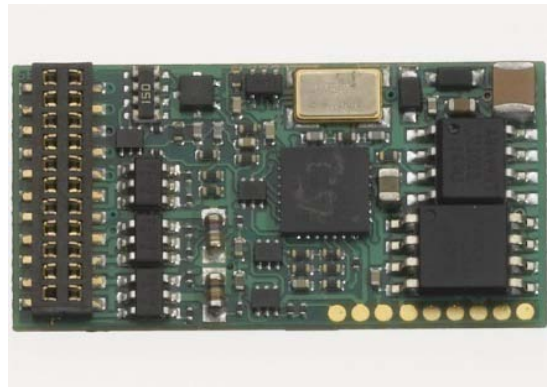
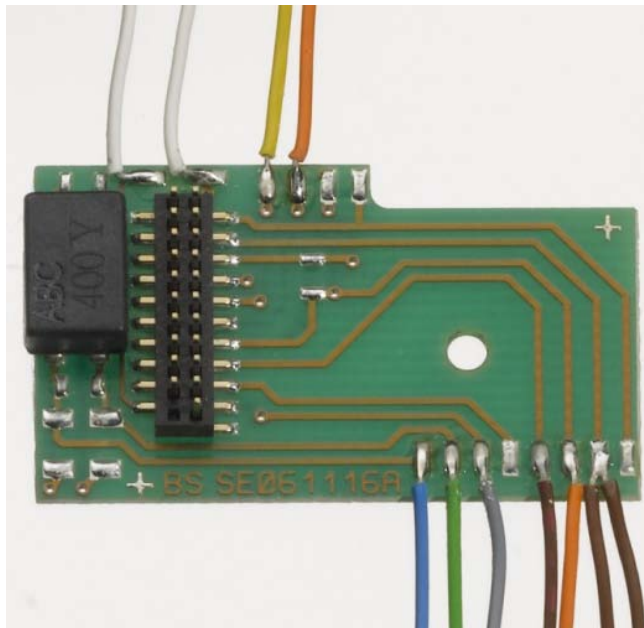
- Sealed decoder without sound, with wiring harness
- 2 auxiliary functions on the hardware (+2 instead of a motor also possible)



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Conversion Decoder:

- Decoder with extensive sound functions and connector
- Connector circuit board with wiring harness
- Complete range of functions
- 60945 for steam locomotive
- 60946 for diesel locomotive
- 60947 for electric locomotive



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Conversion Decoder:

- Decoder with extensive sound functions and with a wiring harness
- 1 auxiliary function on the hardware (+2 instead of a motor also possible)
- 60965 for steam locomotive
- 60966 for diesel locomotive
- 60967 for electric locomotive



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Can be used for all Trix and Märklin H0 Locomotives!

Protocols:

- MM2
- MFX
- DCC
- Analog AC
- Analog DC

Motor:

- Monitoring
- Sine
- As function outputs

Mapping using:

- MFX
- DCC

Braking Module:

- Märklin
- DCC

Speed Levels:

- 14 (DCC, MM2)
- 27 (MM2)
- 28 (DCC)
- 128 (DCC, MFX)

Operating Mode Outputs:

- Dimmer (for dimming)
- Flash 1
- Flash 2
- Strobe (1 light flashing)
- Double Strobe (2 lights flashing)
- Random
- Smoke
- Zoom
- Mars
- Gyrating Lights
- Neon
- Energy Save
- Software for Telex

Other:

- Can be updated
- 16 functions
- SUSI connector*
- Lights (forward / reverse)
- 4 or 2 functions on versions with wiring harness (plus 2 instead of the motor output)
- Auxiliary outputs**

* Not on mSD with wiring harness

** 1 auxiliary function on mSD with wiring harness

Important Notes

Analog Functions:

- Acceleration and braking delay can be adjusted.
- You can set which auxiliary functions are to be active.
- Load compensation monitoring is active.

Functions:

- Auxiliary outputs can have a maximum load of 250 milliamps (limited only by the total maximum load for the decoder).
- Switching range control.

Settings:

- The mLD and mSD can be programmed with all Märklin central units (6021 to 60215). On the 6021 programming can be done up to and including CV 80 (system design).
- Full programming can also be done with the current Mobile Station.
- The mLD and mSD support all DCC programming modes including POM (main track programming).

Important Notes

Operational Safety:

- A false operational bit is supported so that locomotives from an analog area can enter a digital area without going into reverse.
- The fastest possible startup after an interruption in operation (thanks to memory storage of the last settings for a locomotive's decoder).

Ease of Operation:

- The mLD and mSD are protected against short circuits and overloads.
- The mLD and mSD can be updated.

60941 High-Efficiency Motor Conversion Set



Conversion Set for all Märklin H0 Locomotives with Drum-Style Commutator



Contents:

| | |
|-------------------------|---------|
| Armature: | 386 820 |
| Permanent Magnet Field: | 389 000 |
| Brush Plate | 386 940 |

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Conversion Set for Märklin H0 Locomotives with Type 1 (small) Flat Commutators

| Table 1.1 | |
|--|---|
| Locomotives Requiring More Conversion Work | |
| Description | Item Number |
| S-Bahn | 3017, 3128 |
| Class 515 | 3028 |
| Class 81 | 3031, 3032, 30321 |
| Classes E 40, E 41, E 10, BB 9200 (SNCF), Class 1141 (ÖBB), E 424 (FS) | 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3059, 3937 |
| EA 800 | 3044 |
| Zeppelin | 3077, 3477 |
| DHG 500 | 3078, 3088, 3144 |
| DHG 700 | 3088 |

| Table 1.2 | |
|--|---|
| Locomotives Requiring Less Conversion Work | |
| Description | Item Number |
| Class 89 | 3000 |
| Class 795 | 3013, 3016 |
| Tank Locomotive | 3029 |
| Class Da (SJ) | GS 800, 3018, 3019, 3030, 3170, 2670, 2870 |
| Class V 60 / 260 | 3064, 3065, 3131, 3141, 3149 |
| KLVM | 3087, 3090 |
| Class 24 | 3003 |
| Class 74 | 3095, 3105, 3101, 3103 |



Contents:

| | |
|--------------------------|---------|
| Armature: | 210 888 |
| Permanent Magnet Field : | 224 615 |
| Brush Plate: | 224 613 |

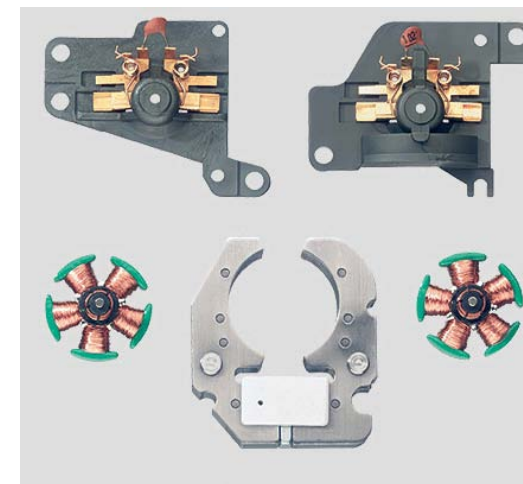
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60944 High-Efficiency Motor Conversion Set



Conversion Set for Märklin H0 Locomotives with Type 2 (large) Flat Commutators

| Item No. | Description | Brush Plate 1 | Brush Plate 2 | 214188 Armature | 210888 Armature |
|--------------------------|-----------------|---------------|---------------|-----------------|-----------------|
| | | 210881 | 214121 | (7 teeth) | (8 teeth) |
| TM 800 / 3004 | Class 80 | X | | X | |
| SK 800 / 3007 | Class 06 | X | | X | |
| GN 800, 3009, 3027, 3046 | Class 44 | X | | X | |
| 3045, 3047, 3108 | Class 44 | X | | X | |
| 3011, 3008 | Class E 44 | X | | X | |
| SEF 800, 3012 | 10000 (SNCF) | X | | X | |
| SEH 800, 3013 | 1100 (NS) | X | | X | |
| 3014 | Re 4/4 SBB | X | | X | |
| 3021, 3081 | Class V 200 | X | | X | |
| 3184, 3921 | Class V 200 | X | | X | |
| 3022, 3052, 3159 | Class E 94 | | X | | X |
| 3300, 3322, 3422 | Class E 94 | | X | | X |
| 3023, 3024 | Class E 18 | X | | X | |
| 3041, 3043 | 1043 (ÖBB) Rc | | X | | X |
| 3050, 3350, 3352 | Ae 6/6 (SBB) | | X | | X |
| 3051, 3055, 3161 | 1200 (NS) | | X | | X |
| 3168 | 1200 (NS) | | X | | X |
| 3053, 3054, 3188 | Class E 03, 103 | | X | | X |
| 3063, 3066, 3067 | NOHAB | | X | | X |
| 3068, 3133, 3134 | NOHAB | | X | | X |
| 3137, 3143, 3174 | NOHAB | | X | | X |
| 3072, 3147 | Class V 100 | X | | X | |
| 3074, 3075 | Class 216 | | X | | X |
| 3096, 3112, 3113 | Class 96 | X | | X | |



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mSD = märklin Sound Decoder 60948 / 60949**Conversion Decoder:**

- Decoder with extensive sound functions and a digital connector
- Connector circuit board
- 60948 for diesel locomotive (Hercules)
- 60949 for electric locomotive (TRAXX)

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