

Assembly List:

| Pos. | Qty. | Component | Remark | Ref. | Done |
|------|------|------------------------------|---------------------------|-------------|------|
| 1 | 1 | Printed circuit board | | | |
| 2 | 1 | Resistor 10 Ohm | brown-black-black-gold | R1 | |
| 3 | 1 | Resistor 360 Ohm | orange-blue-black-black | R2 | |
| 4 | 1 | Resistor 820 Ohm | gray-red-black-black | R3 | |
| 5 | 4 | Resistors 1,5KOhm | brown-green-black-brown | R4 ... R7 | |
| 6 | 1 | Resistor 3,6KOhm | orange-blue-black-brown | R8 | |
| 7 | 5 | Resistors 4,3KOhm | yellow-orange-black-brown | R9 ... R13 | |
| 8 | 1 | Resistor 4,7KOhm | yellow-violet-black-brown | R14 | |
| 9 | 3 | Resistors 10KOhm | brown-black-black-red | R15 ... R17 | |
| 10 | 1 | Potentiometer 100 Ohm | marking: 100 ... | P1 | |
| 11 | 1 | Potentiometer 2,5K Ohm | marking: 2K5 ... | P2 | |
| 12 | 10 | Diodes 1N4003 | attend to polarity! | D1 ... D10 | |
| 13 | 1 | Rectifier | attend to polarity! | GL1 | |
| 14 | 1 | IC-Socket 28poles | attend to polarity! | IC1 | |
| 15 | 1 | IC-Socket 16poles | attend to polarity! | IC2 | |
| 16 | 1 | IC-Socket 8poles | attend to polarity! | IC5 | |
| 17 | 1 | IC: 817 | attend to polarity! | IC6 | |
| 18 | 1 | Resonator 12 MHz | | CR1 | |
| 19 | 1 | Push Button | | S1 | |
| 20 | 1 | Capacitor 10nF | 10nF = 103 | C5 | |
| 21 | 5 | Capacitor 100nF | 100nF = 104 | C6 ... C10 | |
| 22 | 1 | Electrolytic cap. 100uF/25V | attend to polarity! | C4 | |
| 23 | 1 | Electrolytic cap. 220uF/35V | attend to polarity! | C3 | |
| 24 | 2 | Electrolytic cap. 470uF/35V | attend to polarity! | C1, C2 | |
| 25 | 1 | Multi-Fuse R090 | | MF1 | |
| 26 | 1 | Transistor BC 557 | attend to polarity! | T1 | |
| 27 | 2 | Transistors BC 337 | attend to polarity! | T2, T3 | |
| 28 | 1 | LED green plus dist.- spacer | attend to polarity! | LED1 | |
| 29 | 1 | LED yellow plus dist.-spacer | attend to polarity! | LED2 | |
| 30 | 1 | LED red plus dist.-spacer | attend to polarity! | LED3 | |
| 31 | 1 | Pin-Bar 5poles | | JP1 | |
| 32 | 1 | Pin-Bar 6poles | | ST4 | |
| 33 | 2 | Phillips Screws M3x6 | for assy. of IC3 and IC4 | | |
| 34 | 2 | Silikon Insulators | for assy. of IC3 and IC4 | | |
| 35 | 2 | Isolating Bushings | for assy. of IC3 and IC4 | | |
| 36 | 1 | Heat Sink | for assy. of IC3 and IC4 | | |
| 37 | 1 | IC:7805 | assembly on cooling body | IC3 | |
| 38 | 1 | IC: LM317 | assembly on cooling body | IC4 | |
| 39 | 3 | Clamps 3poles | build blocs before assy. | KL1 ... KL3 | |
| 40 | 1 | Clamp 2poles | build bloc before assy. | KL4 | |
| 41 | 1 | Clamp 2poles | | KL5 | |
| 42 | 1 | IC: ATMEGA8 | attend to polarity! | IC1 | |
| 43 | 1 | IC: L293 | attend to polarity! | IC2 | |
| 44 | 1 | IC: 6N137 | attend to polarity! | IC5 | |
| 45 | | | Final Control | | |

Littfinski DatenTechnik (LDT)

Assembly Instruction



TurnTable-Decoder (TT-DEC)

from the *Digital-Professional-Series* !

TT-DEC-B Part-No.: 010501

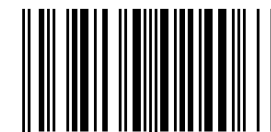
>> kit <<

For the digital control of Fleischmann-, Roco- and Märklin-turntables.

Suitable for the digital formats Märklin-Motorola and DCC

- ⇒ For Fleischmann turntables: 6052, 6152, 6154, 6651, 9152, 6680 (each with and without "C") and 6652 (with 3-rail conductor).
- ⇒ For Roco turntable: 35900.
- ⇒ For Märklin turntable: 7286.
- ⇒ There are no modification required at the turntables!

This product is not a toy! Not suitable for children under 14 years of age! The kit contains small parts, which should be kept away from children under 3! Improper use will imply danger of injuring due to sharp edges and tips! Please store this instruction carefully.



4 038264 024063

Made in Europe by
Littfinski DatenTechnik (LDT)
Bühler electronic GmbH
Ulmenstraße 43
15370 Fredersdorf / Germany
Phone: +49 (0) 33439 / 867-0
Internet: www.ldt-infocenter.com

Subject to technical changes and errors. © 09/2022 by LDT
Märklin, Fleischmann and Motorola are registered trade marks.

Introduction:

You have purchased a kit for your model railway supplied within the assortment of Littfinski DatenTechnik (LDT). These kits are of high quality and easy to assemble.

We are wishing you having a good time for assembling and application of this product!

General:

Tools required for the assembly

Please assure that the following tools are available:

- a small side cutter
- a mini soldering iron with a small tip
- solder tin (if possible 0.5mm diameter)

Safety Instructions

- We designed our devices for indoor use only.
- All electrical and electronic components included in this kit shall be used on low voltage only by using a tested and approved voltage transducer (transformer). All components are sensitive to heat. During soldering the heat shall be applied for a very short period only.
- The soldering iron develops a heat up to 400°C. Please keep continual attention to this tool. Keep sufficient distance to combustible material. Use a heat resistant pad for this work.
- This kit consist of small parts which can possibly be swallowed from children. Children (especially under 3 years) shall not participate on the assembly without supervision.

Set-Up:

For the board assembly please follow exact the sequence of the below **assembly list**. Cross each line off as **done** after completing the insertion and the soldering of the respective part.

For the **diodes** please keep special attention the correct polarity (marked line for the cathode).

Please attend to the polarity mark "+" of the **rectifier GL1**. Some manufacturer are marking the +-side additional with an extended connection wire. If the rectifier contains a **flat side** this side has to correspond to the **marking on the pc-board**.

With reason to different makes of **electrolytic capacitors** you will find different markings of the polarity. Some are marked with "+" and some are marked with "-". Each capacitor has to be assembled to the board that the marking on the capacitor is in **correspondence** with the **marking on the TT-DEC pc-board**.

The three **transistors T1, T2 and T3 (BC XX7)** have to be assembled with attention to the **flat side** of the transistor.

Light emitting diodes have to be assembled that the **long connection wire** of the diode corresponds to the mark "+" on the pc-board. Before assembly please slip one **distance spacer** each onto the connection wires.

The **voltage regulators IC3 (7805)** and **IC4 (LM317)** shall be assembled to the **heat sink** in accordance to the below **illustration 1** and **2** with **insulator, insulator-bushing** and **screw**. Then insert the completed assembly into the bores of the pc-board and solder them.

Integrated circuits (IC`s) are either marked with a half round notch on one end or a printed point for the correct mounting position. Push the IC`s into the correct socket or directly into the pc-board (**IC6**) assuring that the notch or the printed point is corresponding to the half-rounded marking on the pc-board.

Additionally please attend to the sensitivity of the IC`s to **electrostatic discharge** which can destroy the component. Before touching those components please discharge yourself by contacting an earthed metal (e.g. heater etc.) or work with an electrostatic-protected pad.

Assembly of the voltage regulator IC3 and IC4:

The **voltage regulators IC3 (7805)** and **IC4 (LM317)** shall be assembled to the **heat sink** in accordance to the below **illustration 1** and **2** with **insulator, insulating-bushing** and **screw**.

Then **insert** the **completed pre-assembly** into the **bores of the pc-board** and solder them.

Finally **tighten** the two **screws** and solder the **heat sink** and the two **voltage regulators**.

