

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

The **resistor-network RN1** is marked at one end for the assembly position with "...103..." and additionally with a printed circle or a square. Assemble this component that way that the marking corresponds with the marking at the first bore of the pc-board. Additionally is the first bore marked with "1".

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 assuring that the notch or the printed point is corresponding to the half-rounded marking on the pc-board. The 4-poles integrated circuit LTV814 (IC6) shall be soldered directly onto the pc-board.

Please attend to the sensitivity of the ICs to **electrostatic discharge**, which will cause immediate damage of the IC. Before touching those components please discharge yourself by contacting an earthed metal (e.g. earthed radiator) or work with an electrostatic safety pad.

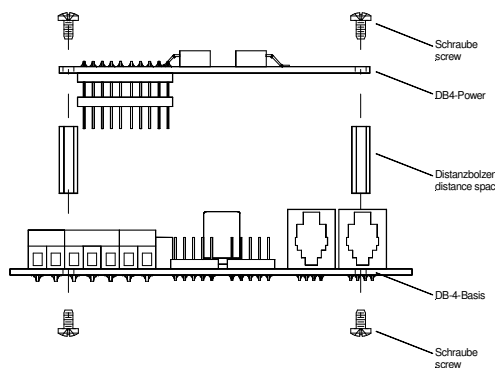
Assembly of the DB4-Power PC-Board:

After completing the DB-4 basic pc-board you can assemble the SMD-pre-assembled and tested DB4-Power PC-Board.

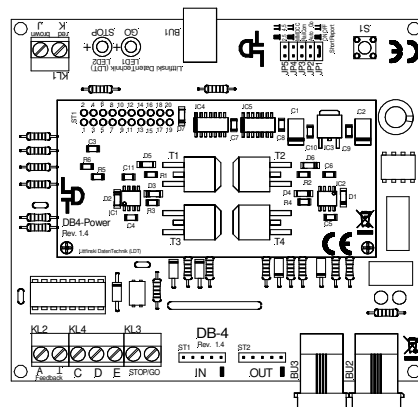
Firstly please tighten the two distance spacer to the basic pc-board with two of the four cross section screws.

Apply now the DB4-Power PC-Board into the socket bar BU4 of the basic pc-board. Pay attention that there is no offset of the DB4-Power PC-Board to the socket. The DB4-Power PC-Board is in correct position at the socket bar BU4 of the basic pc board if you can screw the DB-Power PC Board to the distance bolts.

The following picture 1 show the assembly procedure from the side view and the picture 2 show the assembled DB4-Power-PC Board onto the basic PC-Board with sight from the top.



Picture 1



Picture 2

Littfinski DatenTechnik (LDT)

Assembly Instruction



DigitalBooster DB-4

from the *Digital-Professional-Series* !

DB-4-B Part-No.: 080071

>> kit <<

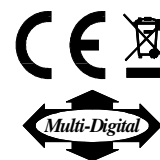
The **DigitalBooster DB-4** is a **short-circuit-protected power amplifier (booster)** for **digital model railway layouts**. It provides a **maximum digital current of 2.5 or 4.5 Ampere**.

The DB-4 amplifies the digital formats of Märklin-Motorola, mfx®, M4 and DCC.

The **DB-4** can operate on several digital command stations by using the **5-poles booster bus**, the **CDE-booster bus** or the **Roco-booster bus**.

The **DigitalBooster DB-4** receives the power supply not from a classical model railway transformer but from the **switched mode mains power supply DB-4 PowerSupply**. On this unit is the **stabilized digital track voltage adjustable between 15 and 24 Volt**, suitable for all track gauges.

This product is not a toy! Not suitable for children under 14 years. Improper use will imply danger or injuries due to sharp edges and tips! Please store this instruction carefully.



CE Part-No.:
1370364



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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

- 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 contains small parts which can possibly be swallowed from children. Children (especially under 3 years) shall not participate on the assembly without supervision.

Assembly List:

Pos.	Qty.	Components	Remarks	Ref.	Done
1	1	Printed circuit board	DB-4 Rev. 1.4		
2	2	Resistors 0,1 Ohm	Marked: "R10"	R1, R2	
3	1	Resistor 10 Ohm	brown-black-black-gold	R3	
4	1	Resistor 100 Ohm	brown-black-black-black	R4	
5	1	Resistor 180 Ohm	brown-gray-black-black	R5	
6	2	Resistors 220 Ohm	red-red-black-black	R6, R7	
7	1	Resistor 330 Ohm	orange-orange-black-black	R8	
8	1	Resistor 470 Ohm	yellow-violet-black-black	R9	
9	1	Resistor 1 KOhm	brown-black-black-brown	R10	
10	1	Resistor 2,2 KOhm	red-red-black-brown	R12	
11	2	Resistors 3,3 KOhm	orange-orange-black-brown	R13, R14	
12	2	Resistors 4,7 KOhm	yellow-violet-black-brown	R15, R16	
13	4	Resistors 10 KOhm	brown-black-black-red	R11,R18...R20	
14	1	Resistor 12 KOhm	brown-red-black-red	R21	
15	1	Resistor 27 KOhm	red-violet-black-red	R22	
16	3	Resistors 47 KOhm	yellow-violet-black-red	R17,R23,R24	
17	1	Resistor 1 MOhm	brown-black-black-yellow	R25	
18	1	Network 5*10 KOhm	attend to polarity!	RN1	
19	10	Diodes 1N4003	attend to polarity!	D1...4, D6...11	
20	3	Diodes 1N5819	attend to polarity!	D5, D12, D13	
21	1	Z-Diode BZX ... 5V1	attend to polarity!	D14	

22	1	Z-Diode BZX ... 30V	attend to polarity!	D15	
23	1	IC-socket 28poles	attend to polarity marking!	IC1	
24	3	IC-sockets 8poles	attend to polarity marking!	IC2, 3, 5	
25	1	IC-socket 16poles	attend to polarity marking!	IC7	
26	1	IC: LTV814	attend to polarity!	IC6	
27	1	DC-DC Converter	attend to polarity!	IC4	
28	1	Resonator 8MHz		CR1	
29	5	Capacitor 100nF	100nF = 104	C1...C5	
30	1	Tantalum cap. 1uF/35V	1uF = 105; attend to polarity!	C6	
31	3	Tantalum cap. 10uF/10V	10uF = 106; attend to polarity!	C7...C9	
32	4	Electrolytic cap. 470uF/35V	attend to polarity!	C10...C13	
33	1	Storage choke		L1	
34	1	DC-socket		BU1	
35	2	Sockets 4poles		BU2, BU3	
36	1	Socket bar 2x10poles		BU4	
37	1	Pin bar 2x5poles		JP1 ... JP5	
38	5	Jumpers	set on pin bar 2x5poles	JP1 ... JP5	
39	2	Pin bars 5poles		ST1, ST2	
40	1	Push button		S1	
41	1	LED green plus distance sleeve	attend to polarity!	LED1	
42	1	LED red plus distance sleeve	attend to polarity!	LED2	
43	1	Clamp 2poles		KL1	
44	3	Clamps 2poles and 3poles	build block prior to assembly	KL2 ... KL4	
45	1	IC: ATMEGA168-20	attend to polarity!	IC1	
46	1	IC: LM2574HVN-5	attend to polarity!	IC2	
47	1	IC: LM393	attend to polarity!	IC3	
48	1	IC: HCLP2631	attend to polarity!	IC5	
49	1	IC: LTV847	attend to polarity!	IC7	
50	4	Cross headed screws M3x6	for assembly "DB4-Power"		
51	2	Distance spacer 18mm	for assembly "DB4-Power"		
52	1	DB4-Power	assembly acc. instruction		
53			final control		

Set-Up:

For the board assembly please follow exact the sequence of the above **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).

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 pc-board.

For **tantalum capacitors** please attend to the connection wire marked "+". This wire has to correspond to the printed mark on the pc-board.