Littfinski **D**aten**T**echnik (**LDT**)

Operating Instruction

Display-Module for Decoder for Switchboard Lights

from the *Digital-Professional-Series* !

GBS-Display-F Part-No.: 050032

>> finished module <<

The GBS-Display-Module together with the Master-Module GBS-Master will build the Decoder for Switchboard Lights GBS-DEC. Up to 4 Display Modules can be connected onto each Decoder for Switchboard Lights GBS.

Each Display-Module GBS-Display can control

⇒ 16 turnout symbols, up to 32 track-occupancy symbols or different 2- to 4-aspects DB-light signal symbols.

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.

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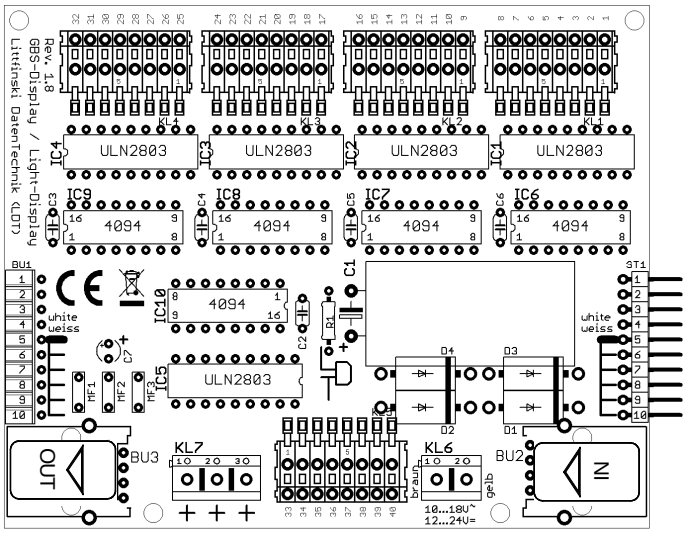
one **Decoder for Switchboard Lights GBS-DEC**. If you use **incandescent lamps** at the switchboard panel you can supply with one **52VA transformer** about **two Display-Modules.** Please **attend** to the **equal polarity** (marked **braun** (brown) and **gelb** (yellow)) at the clamp **KL6** of the connected modules.

Connecting switchboard panel symbols:

Each Display-Module contains **40 outputs. Model railway incandescent lamps** can be connected **directly**. **Light emitting diodes** require absolutely a **series resistor** (about 4,7kOhm). The **DC-voltage** at the 40 outputs will be about **1.4 times the input voltage**. If an AC-voltage (on KL6) will be e.g. 15 Volt, the DC-voltage at the outputs will be about 21 Volt.

The **common plus pole** for all outputs is the **clamp KL7** (**picture 1 at the rear side**).



Introduction/Safety instruction:

You have purchased the **Display-Module GBS-Display** for the **Decoder for Switchboard Lights GBS-DEC**.
The **Display-Module GBS-Display** is a high quality product that is supplied within the ***Digital-Professional-Series*** of **L**ittfinski **D**aten**T**echnik (**LDT**).
We are wishing you having a good time using this product.

The finished module comes with **24 month warranty**.

- Please read the following instructions carefully. Warranty will expire due to damages caused by disregarding the operating instructions. **LDT** will also not be liable for any consequential damages caused by improper use or installation.

Connecting GBS-Display Modules to the Master Module GBS-Master:

- **Attention: Before starting the installation switch off the drive voltage by pushing the stop button or disconnect the main supply.**

Connect the **Display-Module GBS-Display** to a **Master-Module GBS-Master** via the **10-poles pin-plug-bar** or to an **already connected Display-Module**.

Avoid any offset of the **pin contacts to the pin socket contacts.** The **modules are correct connected** if the pc-board will be **flush at top and bottom.**
A **Decoder for Switchboard Lights GBS-DEC** consists of one **Master-Module GBS-Master** and up to **4 Display-Modules.**

Voltage supply to the Display-Modules:

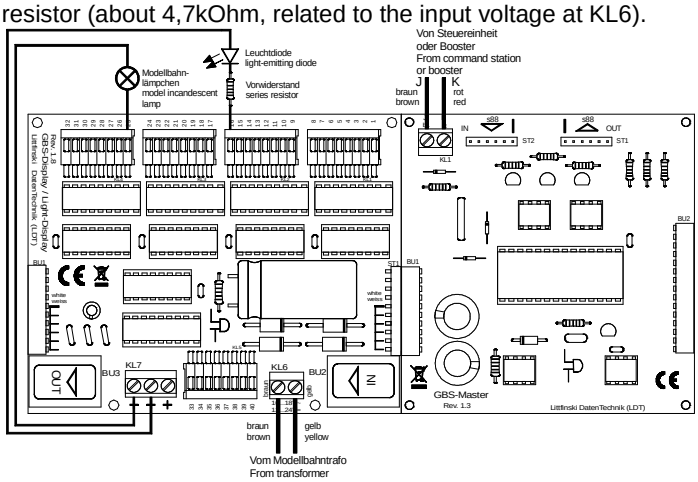
Each **Display-Module** receives the **voltage** from a **model-railway transformer** via the **clamp KL6**. The voltage is acceptable between **10 and 18 Volt AC**. If you use **light emitting diodes** on your Layout Commander Panel you can use one **52VA transformer for** the supply to all **4 Display-Modules** of

Each output can cover a **maximum load of 0.5 Ampere.** For snapping-in a connection cable on one of the 40 outputs pull **carefully down** the **white lever** and insert the cable from the top into the clamp. The **common plus pole** (clamp **KL7**) has **three inputs** which can cover a load of **1 Ampere each**.
Distribute the common plus wires of the lamps and light-diodes **evenly** via the three plus clamps **KL7** (**picture 2 at the rear side**).

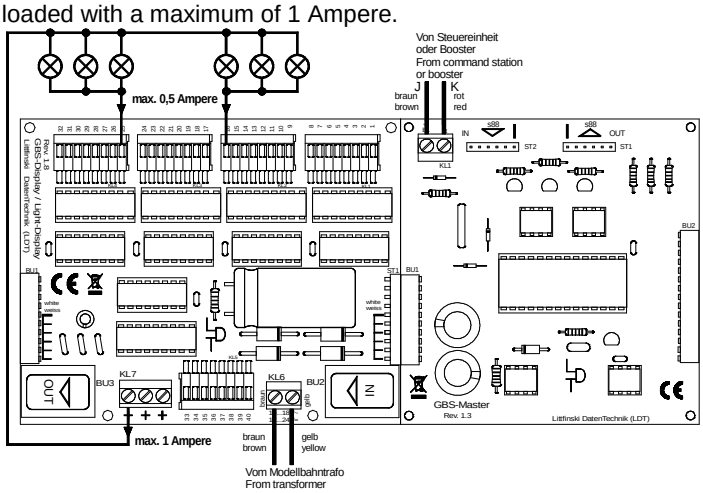
Setting address- and operation mode:

The Decoder for Switchboard Lights receives **digital addresses** as any other decoder. If the command station sends e.g. a turnout shifting command, this command will be received from the Turnout-Decoder (e.g. S-DEC-4) and will shift the turnout. At the same time the Decoder for Switchboard Lights will receive this command and will switch over the corresponding turnout symbol at the switchboard panel.
Each Display-Module receives **16 coherent addresses** (**picture 3**). Each address contains two outputs (by turnouts for round and straight) at the Display-Module. Therefore is it possible to control e.g. 16 turnout symbols (**picture 4**). **Further information for address setting** can be found within the **operating instruction** for the **Master-Module GBS-Master**.
It is possible to control with the GBS-DEC beside **turnout symbols** also **track occupancy symbols** and **2- to 4-aspect DB-signal symbols** at the switchboard panel. 2-aspect DB-signals (block- or track-close signals) will be connected as same as turnout symbols.
Picture 5 at the rear side of this instruction shows how a **DB-block signal** and a **3-aspect DB advance signal** can be connected. **Picture 6** shows the wiring of a **4-aspect DB-main-** and a **3-aspect DB-advance signal**. The control via decoder addresses will be analogue to the control of signals via the **Light-Signal-Decoder LS-DEC-DB.** Further information concerning the **signal-symbol** control can be found within the **operating instruction** for the **Master-Module GBS-Master.**

Picture 1: Incandescent lamps can be connected directly. For light emitting diodes is it absolutely required to assemble a series resistor (about 4,7kOhm, related to the input voltage at KL6).

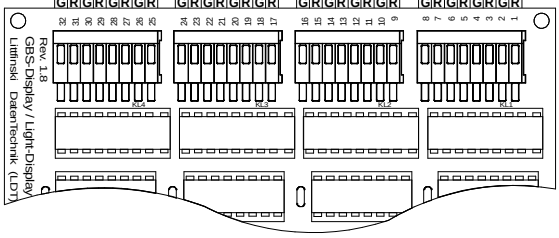


Picture 2: Each of the 40 outputs can cover a maximum load of 0.5 Ampere. Each input of the three plus-clamps (KL7) can be loaded with a maximum of 1 Ampere.

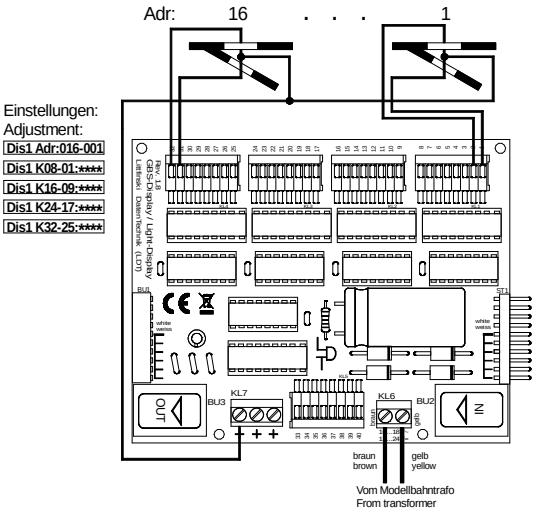


Picture 3: Each Display-Module receives 16 coherent addresses. To each address are two outputs assigned (LED or lamps for turnout round and straight).

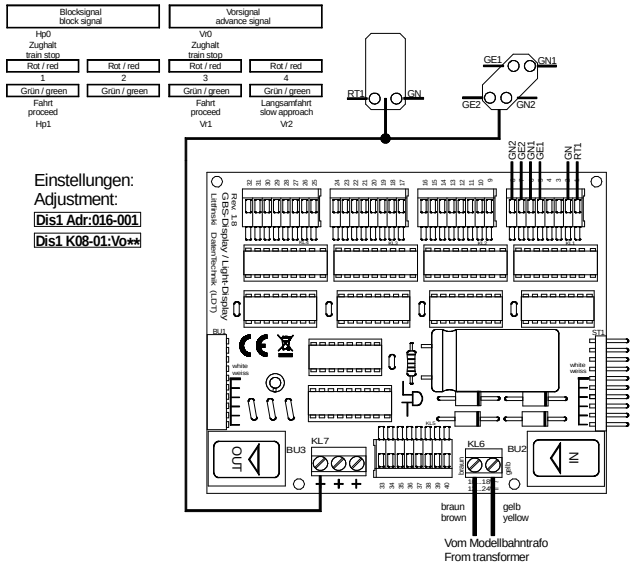
Dis1 Adr:256-241	256	255	254	253	252	251	250	249	248	247	246	245	244	243	242	241
Dis1 Adr:240-225	240	239	238	237	236	235	234	233	232	231	230	229	228	227	226	225
Dis1 Adr:224-209	224	223	222	221	220	219	218	217	216	215	214	213	212	211	210	209
Dis1 Adr:208-193	208	207	206	205	204	203	202	201	200	199	198	197	196	195	194	193
Dis1 Adr:192-177	192	191	190	189	188	187	186	185	184	183	182	181	180	179	178	177
Dis1 Adr:176-161	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161
Dis1 Adr:160-145	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145
Dis1 Adr:144-129	144	143	142	141	140	139	138	137	136	135	134	133	132	131	130	129
Dis1 Adr:128-113	128	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113
Dis1 Adr:112-097	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
Dis1 Adr:096-081	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
Dis1 Adr:080-065	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
Dis1 Adr:064-049	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
Dis1 Adr:048-033	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
Dis1 Adr:032-017	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Dis1 Adr:016-001	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
	G	R	G	R	G	R	G	R	G	R	G	R	G	R	G	R



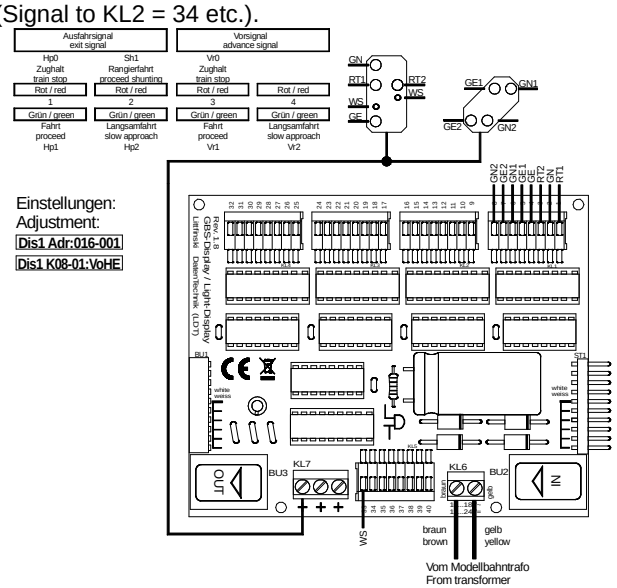
Picture 4: At the outputs 1 to 32 can be 16 turnouts symbols connected. At the below sample there will be the LED´s or lamps switched via the address 1 to 16.



Picture 5: The outputs of the clamp KL1 will control a DB-block- and a DB-advance signal symbol. As indicated at KL1 the same applies for KL2 to KL4.



Picture 6: By connecting a 4-aspect DB-exit signal symbol all wires of the white LED`s or lamps shall be connected with output 33 (Signal to KL2 = 34 etc.).



Colored sample connections can be found on our Web-Site **www.ldt-infocenter.com** at the section **"Sample Connection"**.

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