

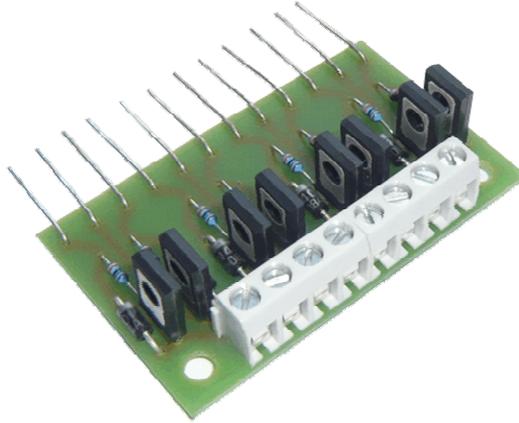
# MODELLBAHN DIGITAL PETER STÄRZ

Dresdener Str. 68 – D-02977 Hoyerswerda – ☎ +49 3571 404027 – [www.firma-staerz.de](http://www.firma-staerz.de) – [info@firma-staerz.de](mailto:info@firma-staerz.de)



## Extension module for accessory decoders for 4 motor-driven track switches

EP-WDMot  
v1-2005



**Degree of difficulty:** **easy**  
medium  
difficult

### Necessary skills:

- Simple assembly and soldering procedure of the board

The extension module EP-WDMot is a module with 4 outputs to connect motor-driven track switches to a compatible accessory decoder.

### Technical specifications

#### Compatible accessory decoders

- Stärz WDMiba (up to v4a-2007)
- Lenz LS100
- Lenz LS150
- Arnold S4
- Viessmann Accessory Decoder 5260
- Trix Accessory Decoder 66828

#### Size

60mm x 37mm x 21mm

#### Power Supply

The module is powered by the accessory decoder.

#### Output current

Maximal 1A per output, maximal 5A overall load

#### Connecting to the accessory decoder

The Extension module is connected to the accessory decoder as displayed in the connection scheme given as example of the WDMiba by wire bridges.

#### Connectors

- Outputs: 8-pinned terminal (5 mm pitch) for a total of 4 motor-driven track switches
- Inputs: 4 times 3 connection pads for connecting to the accessory decoder

#### Assembly notes

The module is assembled following the instructions on the next page. For soldering the components on the PCB a soldering iron of 12 to 25 Watts or a soldering station with the temperate set to approx. 400°C is needed together with 0.5 or 1.0 mm soldering wire with rosin flux. No special tools are required. Do not use soldering flux! Pay attention to solder speedily to avoid device damage by overheating.

### Table of content

Technische Daten .....	1
Lieferumfang des Bausatzes .....	1
Aufstellungsort .....	1
Aufbauanleitung .....	2
Bestückungsplan .....	2
Fertig bestückte Leiterplatte <b>Fehler! Textmarke nicht definiert.</b>	
Funktionsbeschreibung .....	2
Anschlusschema .....	<b>Fehler! Textmarke nicht definiert.</b>
Dauerstrom oder Impulsstrom .....	2
Anschlusschema .....	2

### Kit contents

Please first verify that the kit contains all the components listed below.

#### General parts:

- 1x circuit board
- 2x screws
- 2x spacer rings

#### Connectors:

- 1x terminal clamps 8-pin (5mm pitch)

#### Transistors:

- 8x BD677

#### Diodes (Marking):

- 8x 1N4001

#### Resistors (Marking):

- 3x 3,3kOhm (orange, orange, black, brown, brown)

### Installation site

**The module should be located in a dry, ventilated and clean area being easily accessible and lying beside or next to the model railway layout.**

Please also visit our FAQ page at [www.firma-staerz.de](http://www.firma-staerz.de) for any question first.

### Non-Use

When the module is not used it should be stored at a dry and clean place.

## Assembly instruction

Assemble the kit in the order of these instructions. All components are placed on the top side of the PCB (marked "top") as close to the PCB as possible and soldered on the bottom side of the PCB (marked "Bottom"). Use a bending tool (e.g. Conrad 425869 – 62) for bending. Cut the leads of components flush using a wire cutter after soldering.

### Solder cleanly and precisely!

#### 1. Resistors, diode D41

Bend the resistor leads for 10 mm pitch before insertion. To facilitate placing components on the PCB support the edges of the board with the help of two books, for instance, to leave enough space for the leads under the board. Insert the resistors on board aligning the coloured rings of all the resistors in the same way to make it easier to verify the value of the resistors later. Place a suitable plane piece of wood or similar on top of the resistors on board. Turn the board together with the wood upside down. The underside of the board is now conveniently accessible for soldering the components.

Solder one end of each resistor first and check that they are positioned properly before soldering the other end of each resistor.

R1-R8: 3,3kOhm (orange, orange, black, brown)

#### 2. Diodes

Bend the diode leads for 10 mm pitch. Mount the diodes with cathodes facing to the inputs of the extension module. Cathodes are marked by a white stripe on diodes.

#### 3. Input bridges

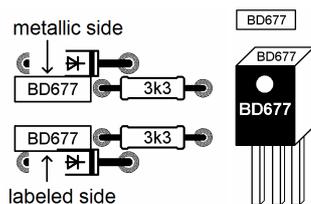
The remaining wire leads of the diodes can be used as input bridges to connect to the accessory decoder.

#### 4. Terminal blocks

Mount the terminal blocks.

#### 5. Transistors

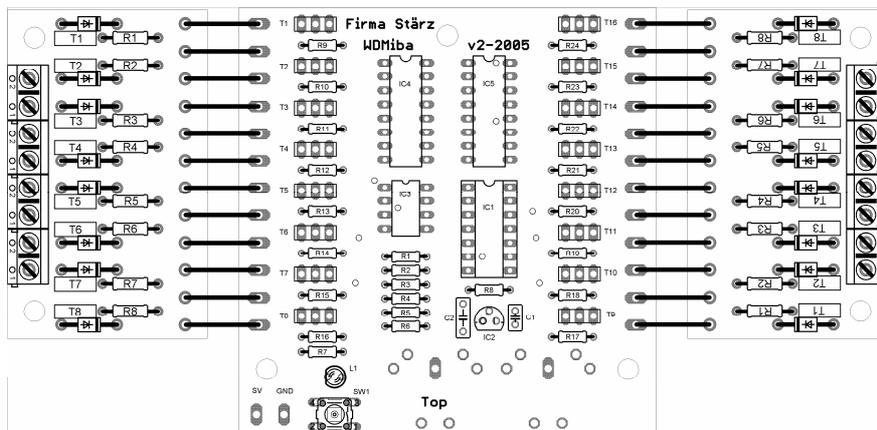
All transistors can be mounted at the same time, when processing similar to the resistors. Pay attention to the orientation when mounting transistors: the metallic side (shiny or completely black surface without label) is on the left if you hold the PCB in a way that the outputs are facing towards you.



#### 6. Verification

After soldering all components on the PCB verify once more that they are placed according component layout diagram and that they are oriented properly. Check that all solder points on the bottom side of the PCB look correct. Note especially if there are any undesired solder bridges between solder pads.

### Connection scheme

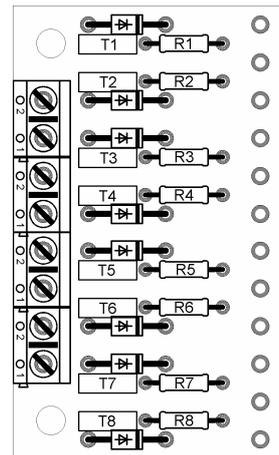


All brands and trademarks are property of their respective owners.

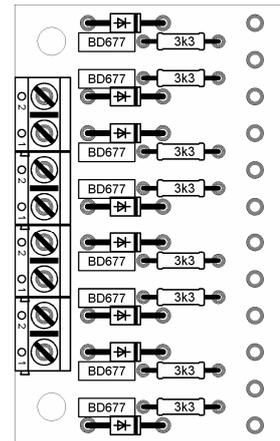
Modellbahn Digital Peter Stärz, Dresdener Str. 68, D-02977 Hoyerswerda

Illustrations and technical data are subject to change. We are not responsible for printing or typographical errors.

### Component layout diagram



### Populated PCB



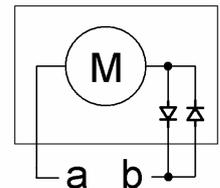
### Description of operation

#### Constant current or pulsed current

The accessory decoder WDMiba offers two possibilities to switch its outputs that are directly transferred to the extension module EP-WDMot: constant current or pulsed current. This is to be noticed when controlling motor-driven track switches: If those do not have end position contacts, then the according decoder output of the accessory decoder must be programmed to pulsed current (e.g. 1,2 seconds). Otherwise the motor, the accessory decoder or the extension module EP-WDMot may be destroyed!

#### Connecting motor-driven track switches

Motor-driven track switches are connected to the 4 output terminals (contact [a] and [b]). In principle connecting motor-driven track switches is similar for all: both contacts of the motor are connected to the outputs of the extension module EP-WDMot. It is possible, however, that some manufacturers add a small circuitry to their motors (in most cases some diodes as depicted) that lead to more than two contacts. Usually there is one common ground (or power supply) which is to be connected to [a] and two contacts, one for each spinning direction of the motor. Both are to be connected to contact [b]. In case of even more contacts, the remaining one are also to be connected to contact [b].



Printable version of 27.11.2012