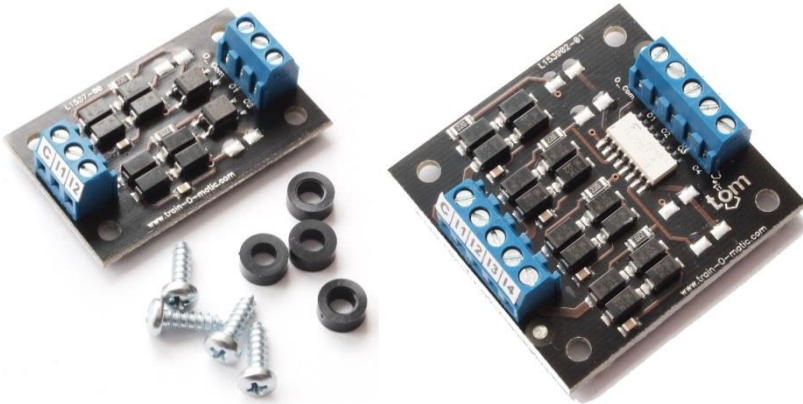




# BOD2 & BOD4 Module

User Manual  
- version 0.1.4 -





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SC Tehnologistic SRL  
Subject to technical modification



Please read this manual carefully before carrying out the installation!!! Although our products are very robust, incorrect wiring may destroy the module!

During the operation of the device the specified technical parameters shall always be met. At the installation the environment shall be fully taken into consideration. The device must not be exposed to moisture and direct sunshine.

A soldering tool may be necessary for the installation and/or mounting of the devices, which requires special care.

During the installation it shall be ensured that the bottom of the device should not contact with a conductive (e.g. metal) surface!

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## 1. Features

- operation in both analog and digital modes
- open-collector transistor outputs, optically isolated
- sensitivity < 0.5 mA
- does not require separate power supply
- compatible with S88N feedback modules

## 2. Tehnical parameters

- number of inputs: 2/4
- power supply voltage: 4-24 V rail voltage
- supply current in idle: < 5 mA
- maximum current through the detector: 1A in continuous regime
- maximum output current: 50 mA
- size: 42x26 (BOD2), 42x40 mm (BOD4)
- weight: TBD
- class of protection: IP00
- operating temperature: 0 to +60 ° C
- storage temperature: -20 to +60 ° C
- moisture: max 85%

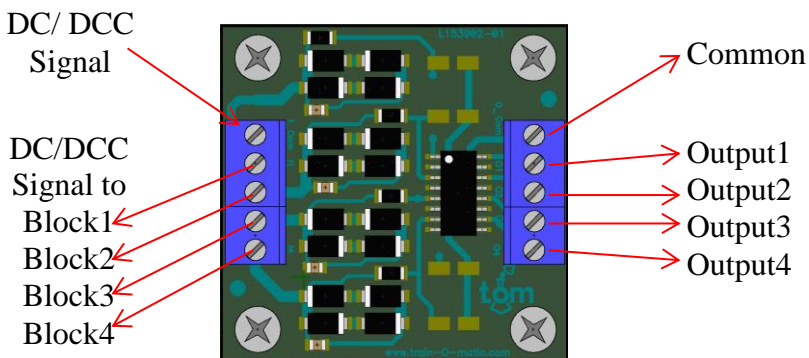
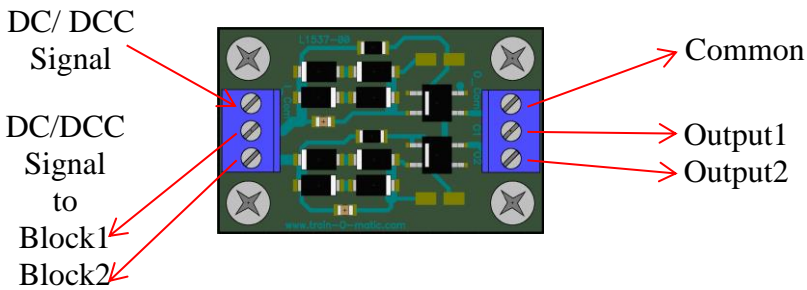
## 3. General description

With BOD2 and BOD4 occupancy detectors you can monitor the occupancy status of rail blocks. Their status are transmitted to digital command stations or personal computers (PCs) using S88N modules. The presence of locomotives or cars on monitorized blocks is detected by their current consumption. The BOD2/BOD4 module input circuit contains two group of two series diodes mounted in antiparallel. One rail of the monitorized block is powered through this module with DC or DCC signal. When you have a minimum consumption on monitored section (locomotive, car lighting, car with

conductive axles) voltage drop across the diode drives the output transistor through an optocoupler. Information can be processed further by a digital command control station or by a personal computer (PC).

## 4. Wiring and mounting

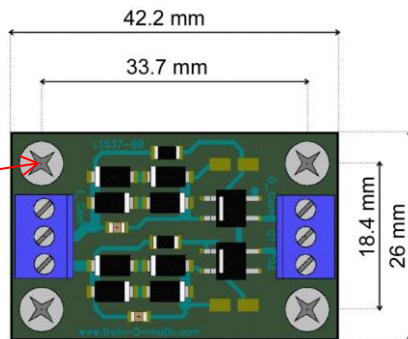
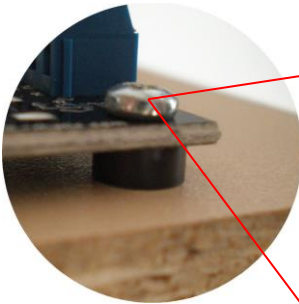
Both variants contain 2 or 4 detection circuits with common terminal. Outputs also have a common terminal:



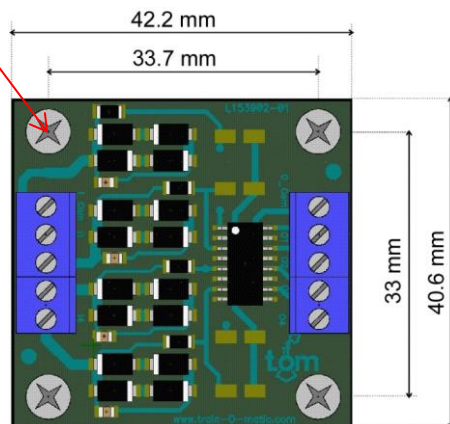
Monitored sections should be isolated at both ends (it is recommended to use plastic rail isolators).



Installing BOD2/BOD4 modules on the layout is done with the supplied screws and spacers. For positioning and mounting see figure below:

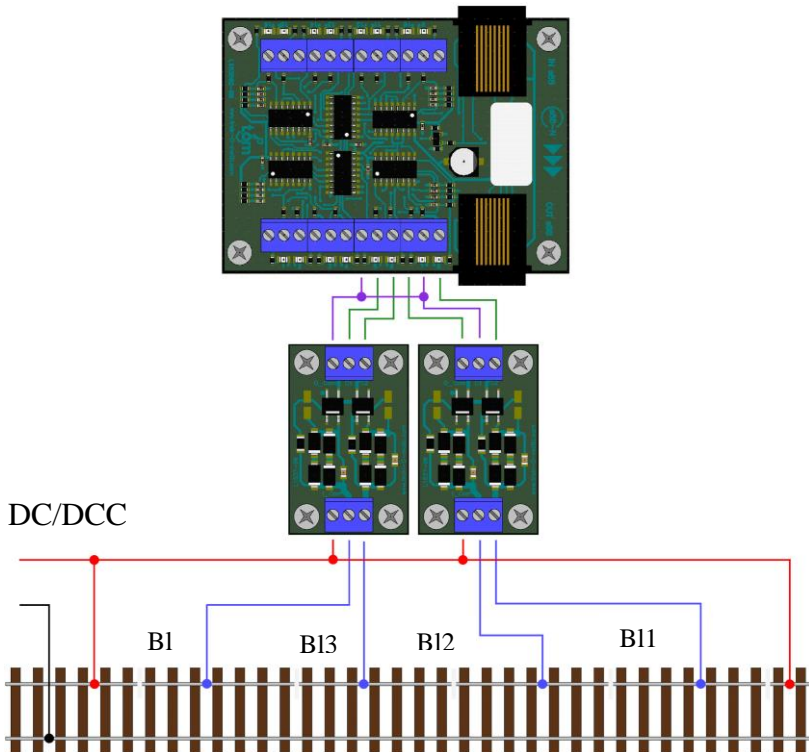


BOD2 and BOD4 detectors should be installed as close as possible to the monitored sections; the electrical connections should be made with multi-conductor wire with appropriate section. Cut the conductors strictly to the required length. We recommend using  $0.25 \text{ mm}^2$  diameter copper wire.

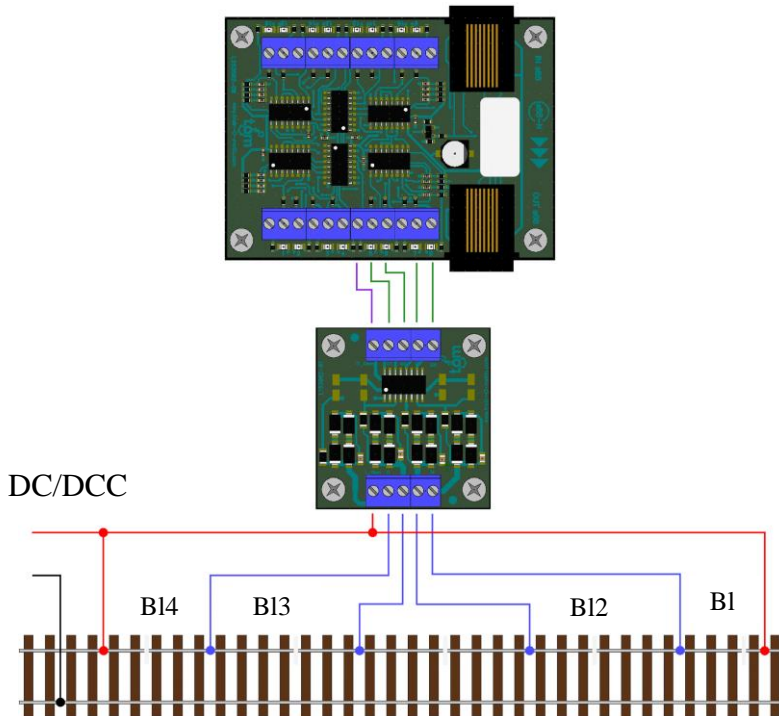


Input circuits diodes supports a nominal current of 1A in continuous mode but can withstand to peaks of 30A for a period of 8 milliseconds. In case of short circuit on the line, the protection of digital command stations or boosters cuts the output voltage faster than 8 milliseconds, thus performing as a circuit protection for BOD modules.

Example of connection of 2 BOD2 modules to a S88N module:



Example of connection of a BOD4 module to a S88N module:



## 5. Recommendations

Voltage drop across the series diodes in the input circuit of BOD2/BOD4 modules is around 1,4 V. In order to balance the DC / DCC signal on unmonitored sections, they will be powered through some DC / DCC insertors, which will produce the same voltage drop of 1,4 V. This way when locomotives are crossing from a monitored section to an unmonitored section, or vice versa, the voltage jumps will not affect the running speed of locomotives.



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