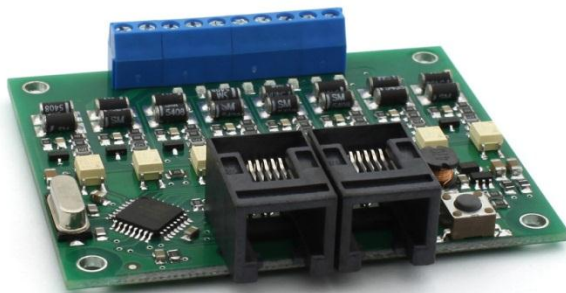


TM-56322



8-channel block occupancy detector for LocoNet

User's manual



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Safety warning



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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Features and properties

- Designed for LocoNet system
- Easy to use, fast programming button
- Low voltage-drop detector inputs
- Extremely low (2mA) current threshold for detecting
- Opto-isolated detector inputs (galvanically separated)
- Control from rail signal and LocoNet
- Immediate LED feedback on each inputs
- Delayed switch-on to prevent false report
- Automatic power-on feedback report
- High-efficiency internal switching power supply
- Adjustable occupancy stretcher
- No need of external power source

Technical parameters

Dimensions: 67x56x15 mm

Idle mode current consumption: 7mA

Max. current on each input: 3000mA

Automatic turn-on delay: 0.5 sec

Minimum detecting current: 2mA

Occupancy feedback stretcher: 0.05 – 2 sec

Supply voltage: 9-24V from LocoNet

LocoNet status support: Yes (GPON, GPOFF, IDLE)

LocoNet feedback support: Yes (1-2048)

Short description

The block occupancy is important information on the layout. The easiest way to use this information globally on layout if the occupancy is reported to LocoNet bus-system. The TM-56322 Block occupancy detector with 8 separated input is cost-effective solution for this application. The TM-56322 using current-flow to detect occupancy, and the enhanced amplified current sensing helps to reduce the voltage-drops on the detector.

Every input can be programmed to different feedback addresses, and can be use independently. On board LEDs lights up when the certain input detect occupancy.

Low LocoNet current consumption

The TM-56322 block occupancy has high-efficiency and low EMI noise switching power supply. Thanks to this internal power supply, the LocoNet current consumption is only few milliamps on LocoNet-bus, many module will not cause high load on the bus.

Occupancy stretcher function

In some cases the occupancy is not constantly detected on the track. Sparking wheels, cars without current consumer loads can cause only short load impulses on the track. The TM-56322 block occupancy detector has internal impulse stretcher.

If the short load pulse is detected on the input, the module can stretch it to the desired length (see occupancy stretcher programming mode). The desired time length can be adjusted in 9 step from 0.05 sec to 2 sec. Every, new short load detection will restart the internal timing.

Detector input common-wire, detecting method

This module is detecting the block occupancy via current consumption on the separated section. To detect, the block occupancy detector need to wired between the common (non-cutted) and the separated (cutted) track. When the load (for

example: Loco) is on the track, the current flows through the block occupancy detector.

The **section common** wire is usually the “never separated” wire of your digital center / booster out. (See figure 1 – red wire)

The **detection common** wire is the other output of your booster / digital center. This wire will be separated to sections, but the module needs direct connect to your booster out. (See figure 1 – blue wire). Please never chain the detection common wire.

Connectors

The module has two LocoNet connectors (parallel connected on module), this can be used for daisy-chain LocoNet bus wiring. Furthermore, the module has screwable terminal blocks to rail wiring.

Wiring

The recommended minimum wire diameter is AWG-24 (approx. 0.2mm^2) per inputs. The common wire must be minimum AWG-20 (approx. 0.5mm^2)

Attention! Please also keep in mind, the detection common wire always have to larger than block inputs, because all inputs current will flow out via detection common wire. For example, if every section is loaded with 200mA, the detection common wire is loaded with $8 \times 200\text{mA} = 1.6\text{A}$!

Programming feedback addresses

This module has easy to use fast programming method. Can be programmed on the final place on your layout.

Every feedback address can be programmed via standard turnout switch command in programming mode. The feedback address range and the turnout address range is almost same.

The switching address is only used for easy address entering, the switching address and feedback address are separated on LocoNet bus. The switching command can be issued on every digital center.

Entering programming mode

The programming mode has two submode. The first is address programming mode, and the second is occupancy stretcher setting mode.

To enter programming mode, press the PROG button at least 0.5 sec., the first LED on the module will light up and blinks, and the module is entered to address programming mode.

Address programming submode

Every LEDs are behind the associated detector input for easy assignment. If the LED is blinking you can send the turnout / switch command with the desired (feedback) address from your digital center. When the module has received the command the actual LED will light constantly for a second, and it will blink again.

To change the next input's feedback address, press PROG button shortly, the blinking will goes to the next. To enter the second input's feedback address, please repeat the previous method (make a switch command on your digital center with desired address).

Occupancy stretcher submode

To enter occupancy enlarger setting mode, press the PROG button again at least 0.5sec. The 8 LEDs on the module will make a bargraph display to help the setting. The occupancy stretcher time can be modified with PROG button short pressing. Each pressing the delay will be increased from 0.05 sec to 2 sec in nine steps.

Leaving the programming mode

To leave programming mode, please press the PROG button again at least 0.5 sec. Every settings will be saved permanently.

Guarantee and legal statement

Each parameter of the device will be submitted to comprehensive testing prior to marketing. The manufacturer undertakes one year guarantee for the product. Defects occurred during this period will be repaired by the manufacturer free of charge against the presentation of the invoice.

The validity of the guarantee will cease in case of improper usage and/or treatment.

Attention! By virtue of the European EMC directives the product can be used solely with devices provided with CE marking.

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Figure 1. Wiring of TM-56322 LocoNet block occupancy feedback module

