



HDM14D Version 2.0 for scale Z, N, TT, HO, O, I and G

#### Liability disclaimer:

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Hans Deloof info@locohdl.be https://www.locohdl.be

# **Current sensor module**

In a digital layout are current sensors the best way to detected trains in a section. Even if trains are standing still there is always a decoder or lamp or LED that consume some current that is been possible to detect. Sections can been made by electric isolated rails each digital powered thru his own current detector. This is a simple and good working current detection for digital trains. It can be connected to LocolO, LocoServo, LocoBooster. The current sensor Transformer has no voltage loss on the digital signal and can detect better low currents. Select HDM14 module in LocoHDL as "Block detection Active Low" and with "block Detection delay" for the best effect.

Tuning the module allows to eliminate the capacitive consumption of the rails and points and optimise the current measurement.

#### **Bill of materials:**

Resistor	470Ω (Yellow, Violet, Brown, Gold)	4	R1, R2, R3, R4
Resistor	1kΩ (Brown, Black, Red, Gold)	4	R5 ,R6, R7, R8
Trim-potentiometer	47kΩ	2	R9, R10
Capacitor	330pF (331)	4	C1, C2, C3, C4
Capacitor	470nF (474)	4	C5, C6, C7, C8
Diode	1N4148	4	D1, D2, D3, D4
LED Ø3mm	Gelb	4	D5, D6, D7, D8
Transistor	BC547C	4	T1, T2, T3, T4
Strom Sensor Transformer	AS101	4	L1, L2, L3, L4
Quad differential Comparator	LM339N or LM2901N	1	U1
Connector	RJ12	1	J1
Connector	6 pins	1	J2

Pin 1 = digital power for section 3 and 4

Pin 2 = rail section 4

Pin 3 = rail section 3

Pin 4 = rail section 2

Pin 5 = rail section 1

Pin 6 = digital power for section 1 and 2



#### HDM14D -> 12cm - 0,75mm<sup>2</sup>



## Current sensor connections:

- Connection between current sensor and LocolO The length of the cables can be maximum 200 cm.



Correct

Wrong

- The length of the cable between current sensor and rails preferably as short as possible, recommended maximum **100 cm**.
- Per rail section is maximum power consumption 8A
- The sum of Digital power consumption is maximum **12A** per digital connection.

### Adjusting Trim potentiometer R9 and R10:

- Put nothing on the track connected to the current sensor.
- Open LocoHDL and double click on the LocoIO in the Address List connected with the current sensor.
- Wait until the module is completely read. Make sure "Block Off Delay" is disabled (unchecked).
- Turn first Potentiometer slowly clockwise until the port indicated busy.
- Then turn Potentiometer slowly counter clockwise until the port indicated empty and remains.
- Now the current detector is adjusted.



Pin 6: Digital Power for section 1 and 2 Pin 5: Rail section 1 Pin 4: Rail section 2 Pin 3: Rail section 3 Pin 2: Rail section 4 Pin 1: Digital Power for section 3 and 4

