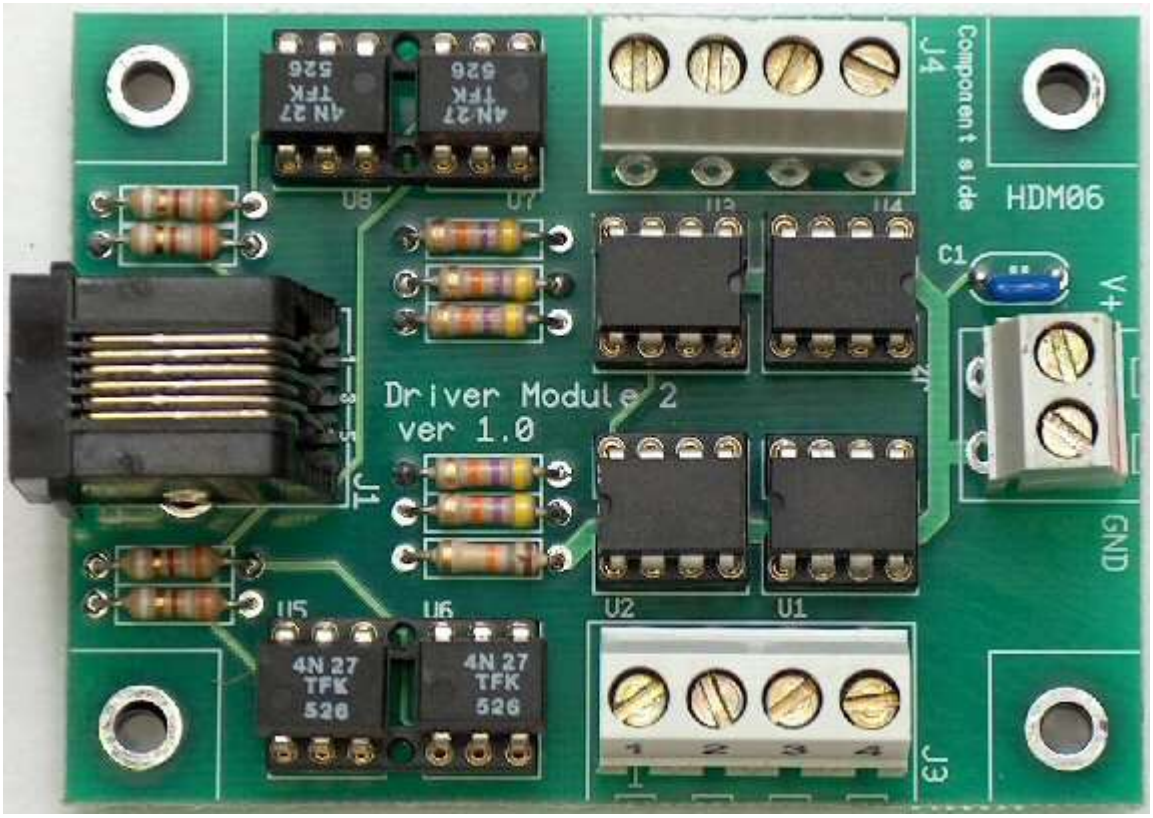
Driver Module 2



HDM06

Liability disclaimer:

Use all items that can be bought and installation instructions that can be found on this site at your own risk. They have been developed for personal use, and I find them very useful. That is why I wish to share them with other model railroad hobbyists. All items and procedures have been tested and used on my own model railroad systems without causing any damage, but this does not necessarily imply that all modifications and procedures will work in any and all environments or systems. I cannot take any responsibility when items or procedures are used under different circumstances. Always use your own judgement and common sense!

Hans Deloof
hans.deloof@compaqnet.be
http://users.telenet.be/deloof/index.html

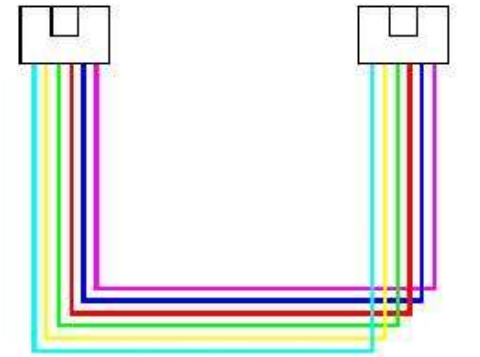
Version 03/10/2017

Driver Module 2 for LocoIO

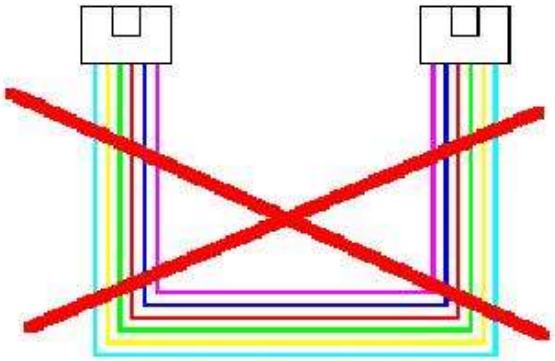
This is a driver module 2 for LocoIO. Then it is possible with the LocoIO outputs (5V, max 20mA) to drive different items with higher voltages and bigger currents.
This module can be used for direct connection of 4-point motors with end-switches or 2-point motors without end-switches.
Also for 4 red/green signals can be served.

Driver module connection:

The Connection between LocoIO and Driver Module is with a 6-wire cable with RJ12 connectors. Important is that on the connector on both ends of the cable the pin1 to pin1 is connected. The length of the cables can be maximum 200 cm.



Correct



Wrong

Bill of materials for the basic driver module:

UT_DEVICE	UT_VALUE	Refdes
Connector	RJ12	J1
HDR_2	2 pins print connector	J2
HDR_4	4 pins print connector	J3, J4
Resistor	47kΩ	R1, R3, R4, R5, R6
Resistor	18kΩ	R2
Resistor	390Ω	R7, R8, R9, R10
Capacitor	100nF	C1
Opamp	L272M	U1, U2, U3, U4
Optocoupler	TIL111	U5, U6, U7, U8

Remark:

- For the optocoupler may in principle every 6 pins optocoupler been used, as the 4N27, CNY17,…

Specifications:

Power voltage V+ on J2: 5 to 24 V this depends on the connected engines
Output current each port: 700mA max

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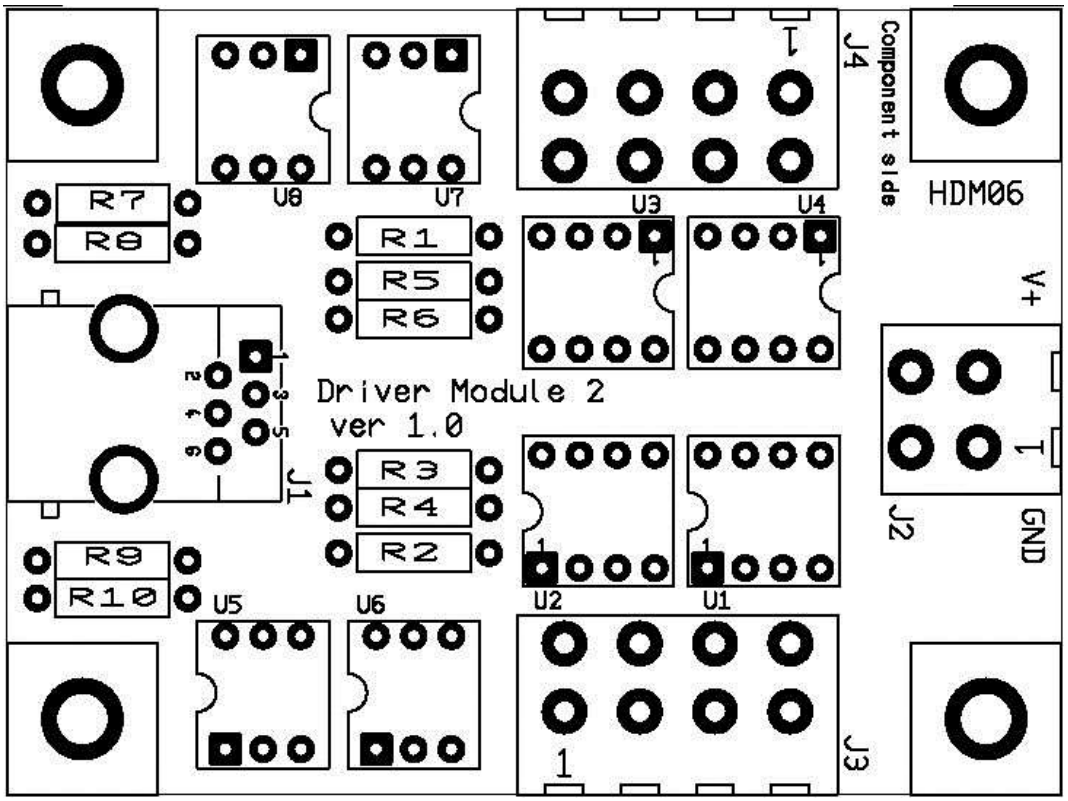

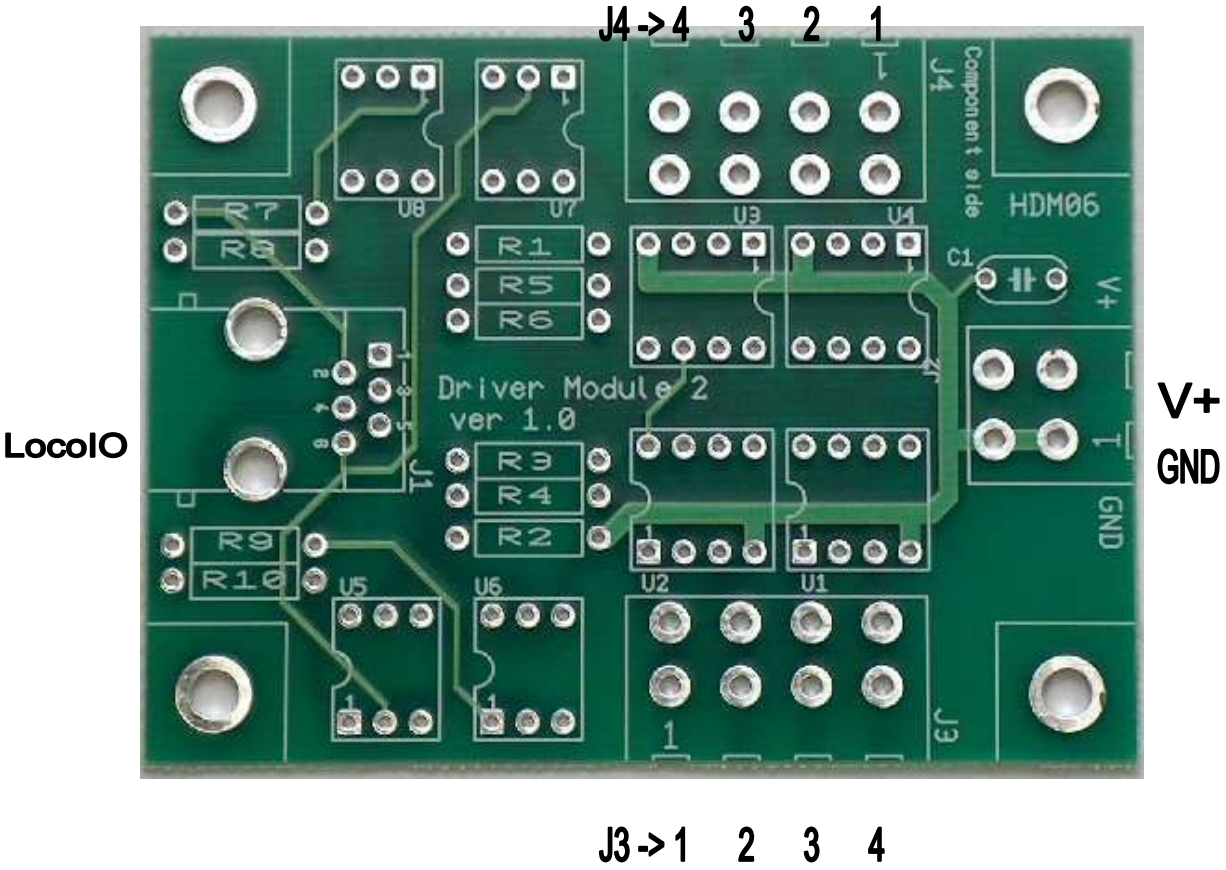

Hans Deloof
hans.deloof@compaqnet.be
http://users.telenet.be/deloof/index.html

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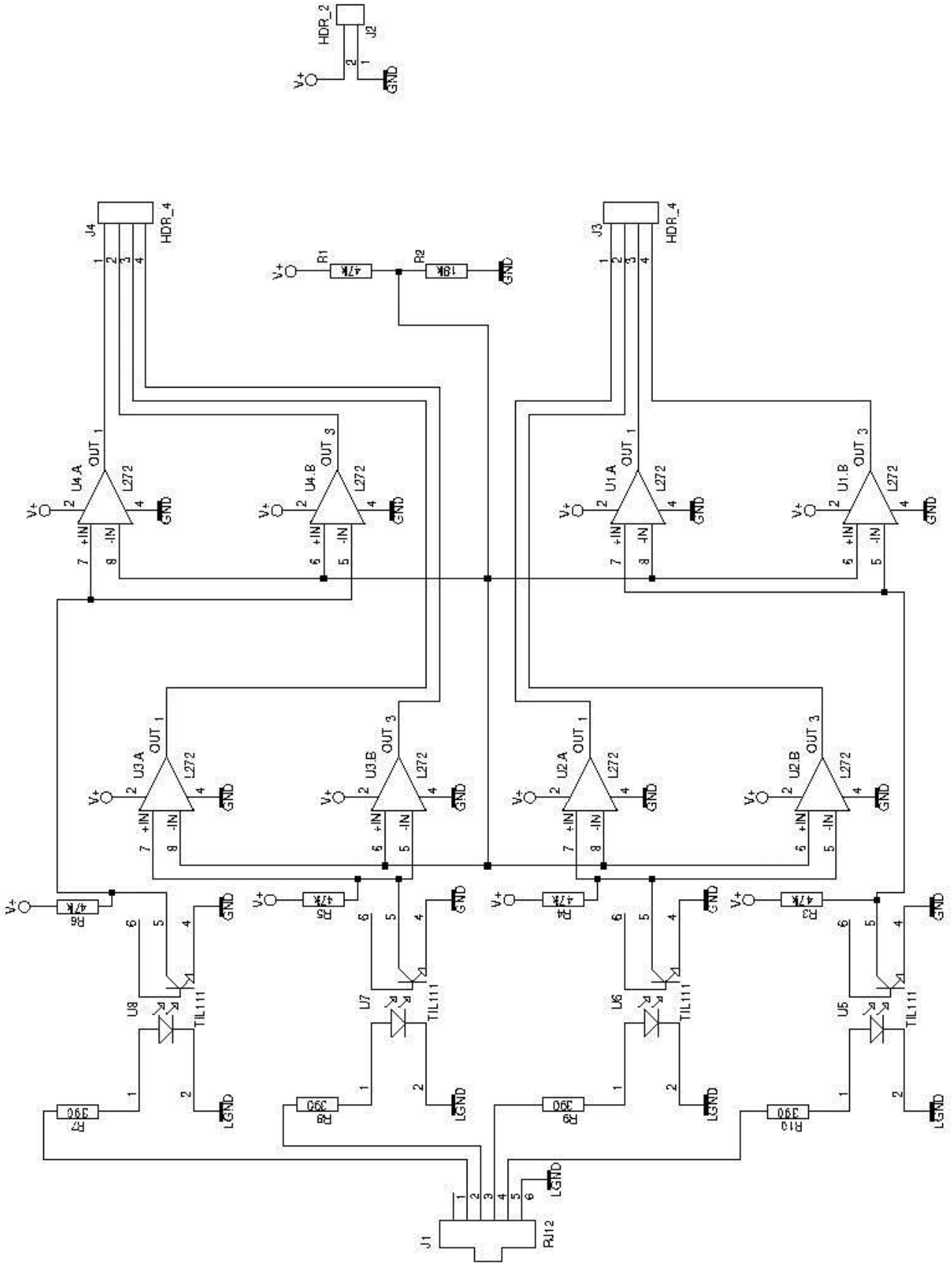
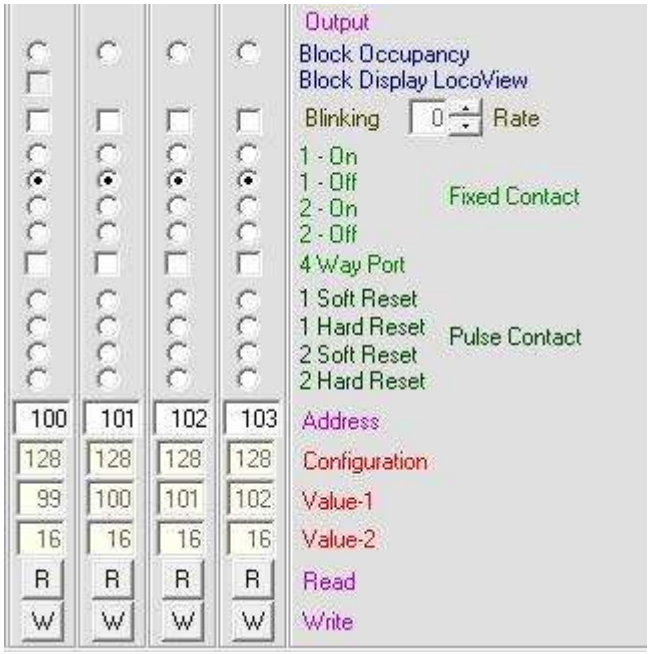
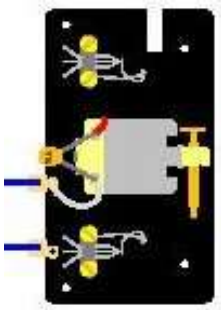

HDR_2
J2
V+
GND
HDR_4
J4
J3
R1
4.7K
R2
18K
U4.A
U4.B
U1.A
U1.B
U3.A
U3.B
U2.A
U2.B
L272
OUT 1
OUT 3
+IN
-IN
R6
R5
R4
R3
U8
U7
U6
U5
TIL111
R9
R8
R13
390
LGND
J1
RJ12

Examples of Configuration and connection with end-switches:



Lemaco motor or Tortoise motor:

Motor 1		**Motor 2**		**Motor 3**		**Motor 4**
J3 – pin 1	and/or	J3 – pin 3	and/or	J4 – pin 1	and/or	J4 – pin 3
J3 – pin 2		J3 – pin 4		J4 – pin 2		J4 – pin 4



Tillig/Pilz motor:

	Motor 1		**Motor 2**		**Motor 3**		**Motor 4**
Red	J3 – pin 1	and/or	J3 – pin 3	and/or	J4 – pin 1	and/or	J4 – pin 3
Pink en Yellow	J3 – pin 2		J3 – pin 4		J4 – pin 2		J4 – pin 4

2-way signal with common ground connection:

Signal 1		**Signal 2**		**Signal 3**		**Signal 4**
J3 - pin 1	and/or	J3 – pin 3	and/or	J4 – pin 1	and/or	J4 – pin 3
J3 - pin 2		J3 – pin 4		J4 – pin 2		J4 – pin 4
J2 - pin 1		J2 – pin 1		J2 – pin 1		J2 – pin 1

Hans Deloof
hans.deloof@compaqnet.be
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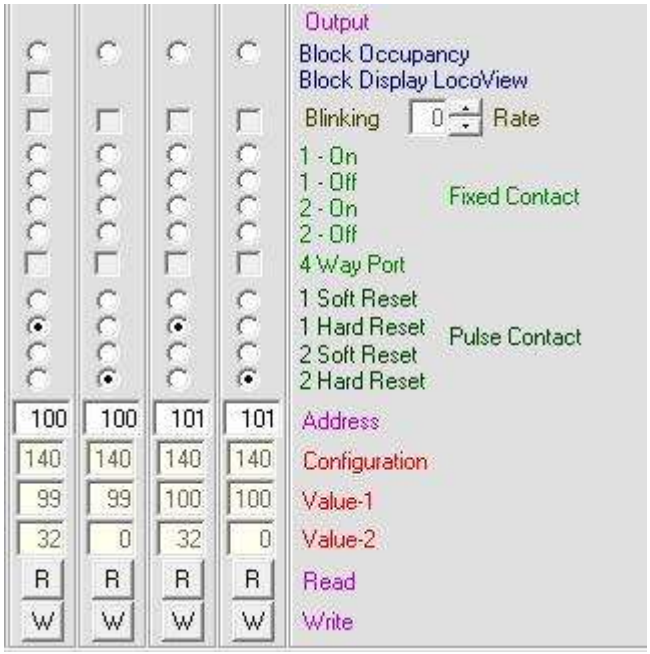
Examples of Configuration and connection without end-switches:



Kato motor

Motor 1	**Motor 2**
J3 – pin 2	J4 – pin 2
and/or	
J3 – pin 4	J4 – pin 4