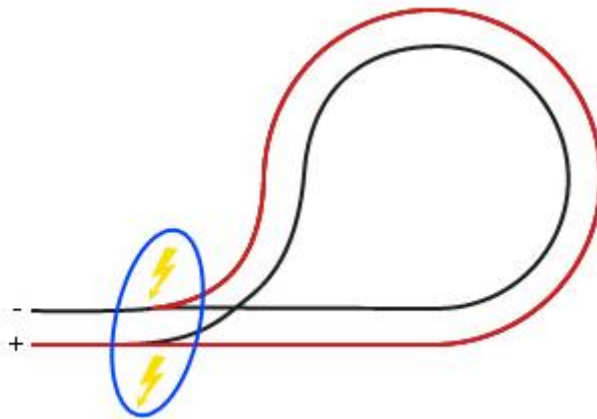


Reverse loop with LocoHDL modules

The problem of the reverse loop

In the two-rail system, a problem arises when using reversing loops as a result of the different polarity on the rails.

Regardless of the position of the switch, the left and right rail are brought into contact with each other. A short circuit occurs. Concealed turning loops may be present on complex model railways. In the event of a short circuit, also check whether you have not built a hidden reverse loop.



You could solve the problem by cutting the rails in the middle, but if a locomotive runs over you have a short circuit again. This short circuit burns the wheels of your locomotive. If at the same time the control panel sends a command to an accessory (signal or turnout), this command can become corrupt and not give the desired result.

All solutions to the reversing loop problem therefore come down to changing the polarity of the track when the train is fully in the reversing loop, so that it will drive through correctly and no short circuit occurs.

Changing the polarity of the rails is called polarity reversal and can be done in different ways. There are solutions with diodes, an extra transformer, switches and changeover contacts.

We propose a solution below by using our existing LocoHDL modules.

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!

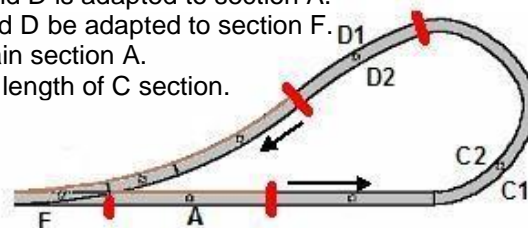
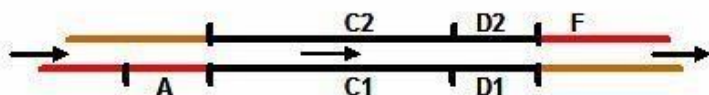
Drive through the turning loop in 1 direction

In section A a train is detected. Then the polarization of section C and D is adapted to section A.

As the train in section D is detected, the polarization of section C and D be adapted to section F.

At the time that the train in section D arrived, it must have left the train section A.

The train that runs by the turning loop should not be longer than the length of C section.



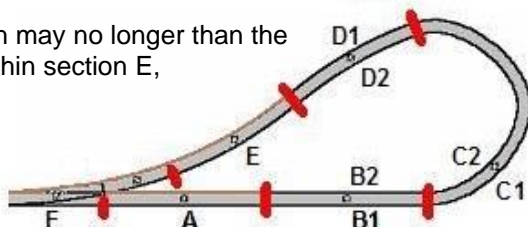
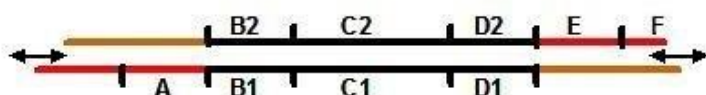
Drive through the turning loop in 2 directions

The operation is similar to the turning loop 1

As the train passing the turning loop within section A, the train length may no longer than the length of section B + C.

And as the train passing the turning loop within section E,

the train length may no longer than the length of section C + D.



LocoIO settings

Train entering the turning loop along section A:

With the LocoIO "Extra Opcode 1" of section A, the busy signal of section A will switch the relay, so that rail B1, C1 and D1 are connected to the digital power supply (red) and rail B2, C2 and D2 to the digital ground (brown)

Train running outside the turning loop along section D:

With the LocoIO "Extra Opcode 1" of section D, the busy signal of section D will switch the relay, so that rail B1, C1 and D1 are connected to digital ground (brown) and rail B2, C2 and D2 to the digital power supply (red).

With the LocoIO "Extra Opcode 2" of section D, the busy report of section D will switch the switch.

Train entering the turning loop along section E: (Only for loop 2 directions)

With the LocoIO "Extra Opcode 1" of section E, the busy signal of section E will switch the relay, so that rail B1, C1 and D1 are connected to digital ground (brown) and rail B2, C2 and D2 to the digital power supply (red)

Train running outside the turning loop along section B: (Only for loop 2 directions)

With the LocoIO "Extra Opcode 1" of section B, the busy signal of section B will switch the relay, so that rail B1, C1 and D1 are connected to the digital power supply (red) and rail B2, C2 and D2 to the digital ground (brown).

With the LocoIO "Extra Opcode 2" of section B, the busy report of section B will switch the switch.

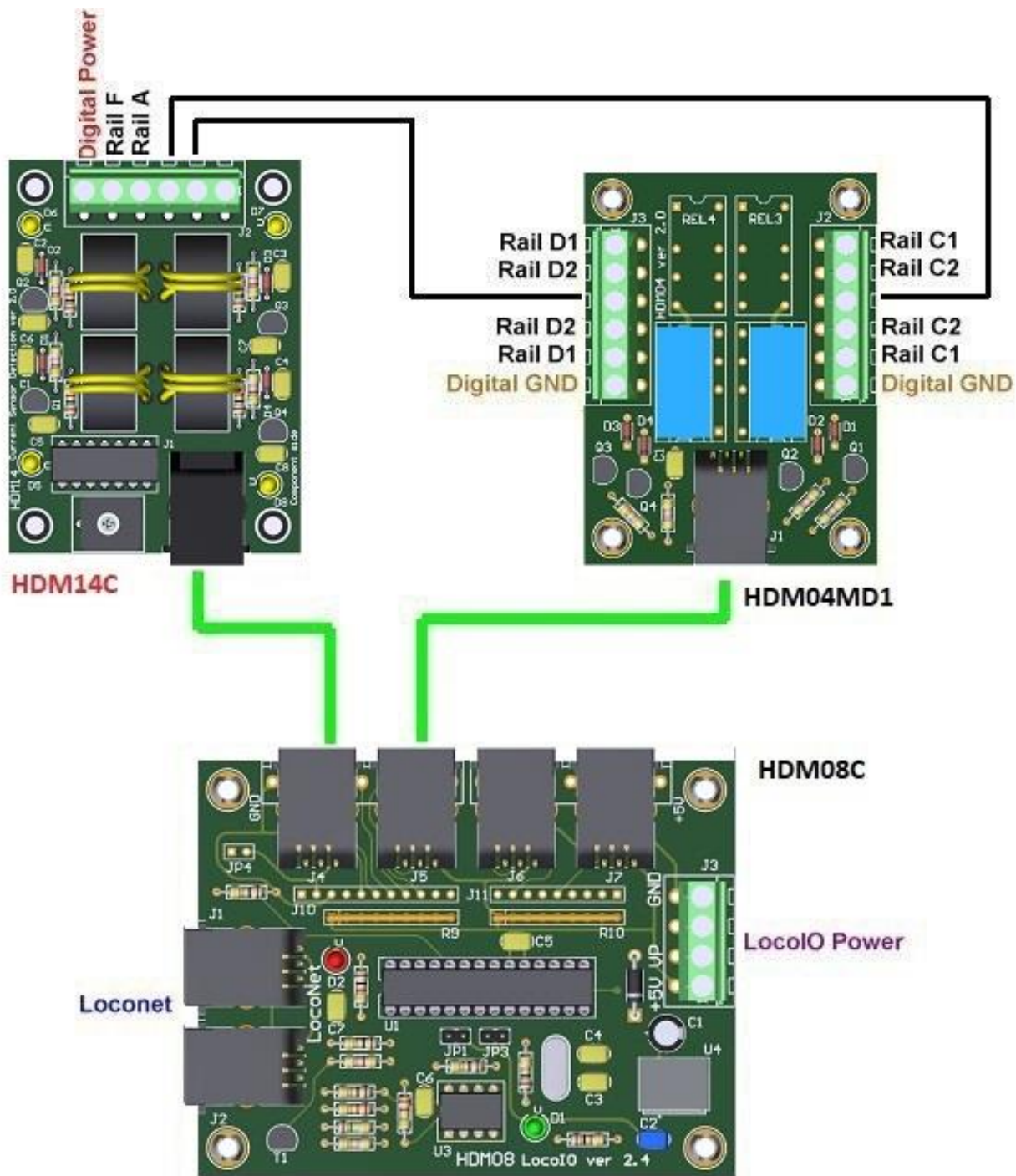
Train entering section F: (Only for loop 1 direction)

With the LocoIO "Extra Opcode 1" of section F, the busy notification from section F will switch the switch to section A.

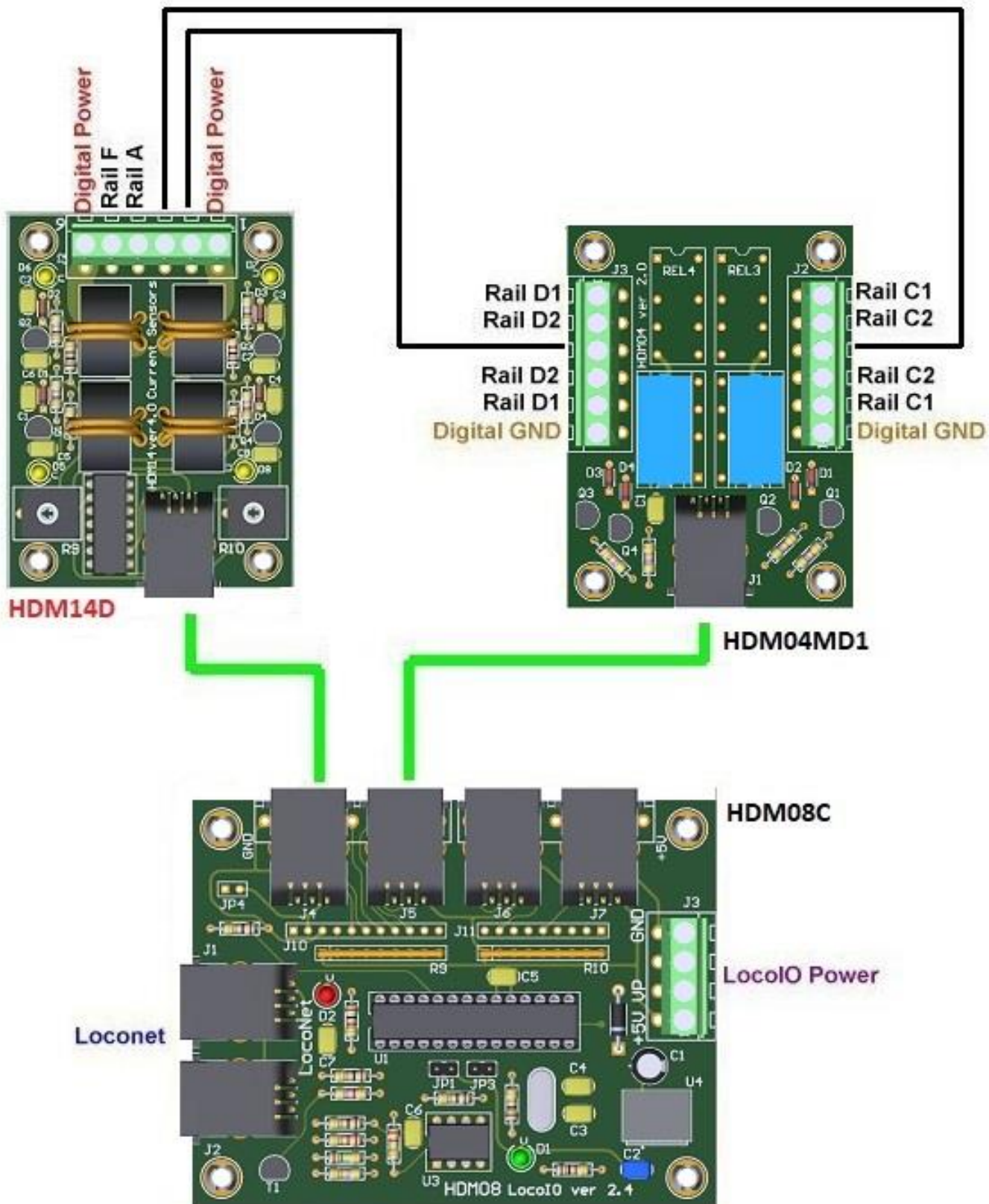
Note regarding the settings:

In the settings shown below, a generic code (letters) is used to represent the address of an accessory (occupation detector, relay or turnout). It goes without saying that when you implement your reverse loop you need to enter the real address instead of the generic code.

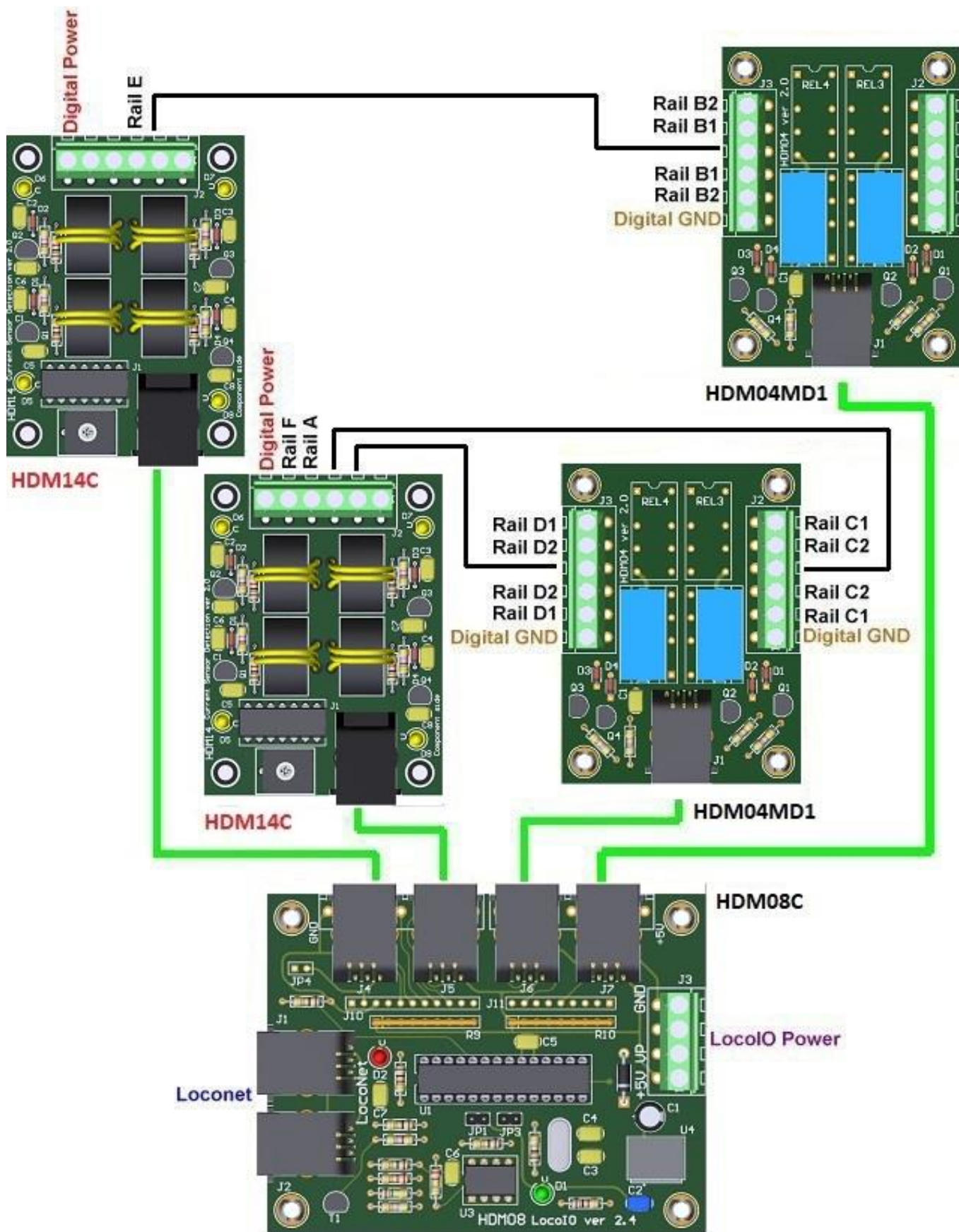
Drive through the turning loop in 1 direction with HDM14C



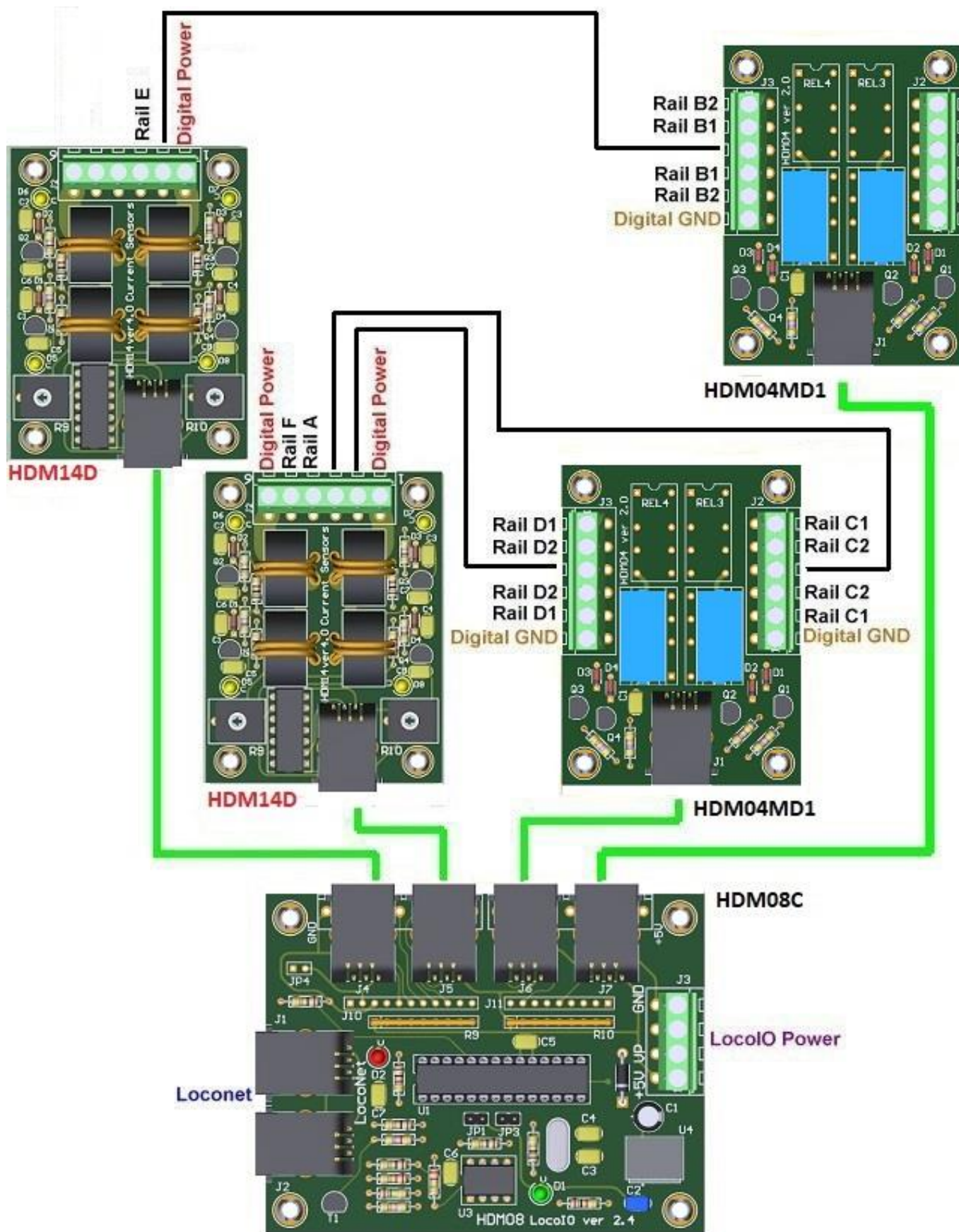
Drive through the turning loop in 1 direction with HDM14D



Drive through the turning loop in 2 directions with HDM14C



Drive through the turning loop in 2 directions with HDM14D



Setting for Section A

<input type="checkbox"/>	Input	<input type="checkbox"/>	Input
<input type="radio"/>	Block Detection Active Low	<input type="radio"/>	Block Detection Active Low
<input type="radio"/>	Block Detection Active High	<input type="radio"/>	Block Detection Active High
<input checked="" type="checkbox"/>	Block Detection Delay	<input checked="" type="checkbox"/>	Block Detection Delay
<input type="radio"/>	Toggle Switch	<input type="radio"/>	Toggle Switch
<input type="radio"/>	Push Button Active Low	<input type="radio"/>	Push Button Active Low
<input type="radio"/>	Push Button Active High	<input type="radio"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="radio"/>	Switch Point Feedback	<input type="radio"/>	Switch Point Feedback
<input type="radio"/>	Contact 1 Point Feedback	<input type="radio"/>	Contact 1 Point Feedback
<input type="radio"/>	Contact 2 Point Feedback	<input type="radio"/>	Contact 2 Point Feedback
<input type="radio"/>	Double Input	<input type="radio"/>	Double Input
<input type="radio"/>	Output	<input type="radio"/>	Off Extra Opcode 1
<input type="radio"/>	Block Occupancy	<input checked="" type="radio"/>	Direct Code
<input type="radio"/>	Block Display LocoView	<input type="radio"/>	Indirect Code
<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate	<input type="radio"/>	Contact 1
<input type="radio"/>	1 - On	<input type="radio"/>	Contact 2
<input type="radio"/>	1 - Off	<input checked="" type="checkbox"/>	Rel Address
<input type="radio"/>	2 - On Fixed Contact	<input type="checkbox"/>	
<input type="radio"/>	2 - Off		
<input type="checkbox"/>	4 Way Port		
<input type="radio"/>	1 Soft Reset		
<input type="radio"/>	1 Hard Reset Pulse Contact		
<input type="radio"/>	2 Soft Reset		
<input type="radio"/>	2 Hard Reset		
A	Address	A	Address

Setting for Section B (NOT for loop 1 direction)

<input type="checkbox"/>	Input	<input type="checkbox"/>	Input	<input type="checkbox"/>	Input
<input type="radio"/>	Block Detection Active Low	<input type="radio"/>	Block Detection Active Low	<input type="radio"/>	Block Detection Active Low
<input type="radio"/>	Block Detection Active High	<input type="radio"/>	Block Detection Active High	<input type="radio"/>	Block Detection Active High
<input checked="" type="checkbox"/>	Block Detection Delay	<input checked="" type="checkbox"/>	Block Detection Delay	<input checked="" type="checkbox"/>	Block Detection Delay
<input type="radio"/>	Toggle Switch	<input type="radio"/>	Toggle Switch	<input type="radio"/>	Toggle Switch
<input type="radio"/>	Push Button Active Low	<input type="radio"/>	Push Button Active Low	<input type="radio"/>	Push Button Active Low
<input type="radio"/>	Push Button Active High	<input type="radio"/>	Push Button Active High	<input type="radio"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="radio"/>	Switch Point Feedback	<input type="radio"/>	Switch Point Feedback	<input type="radio"/>	Switch Point Feedback
<input type="radio"/>	Contact 1 Point Feedback	<input type="radio"/>	Contact 1 Point Feedback	<input type="radio"/>	Contact 1 Point Feedback
<input type="radio"/>	Contact 2 Point Feedback	<input type="radio"/>	Contact 2 Point Feedback	<input type="radio"/>	Contact 2 Point Feedback
<input type="radio"/>	Double Input	<input type="radio"/>	Double Input	<input type="radio"/>	Double Input
<input type="radio"/>	Output	<input type="radio"/>	Off Extra Opcode 1	<input type="radio"/>	Off Extra Opcode 2
<input type="radio"/>	Block Occupancy	<input checked="" type="radio"/>	Direct Code	<input checked="" type="radio"/>	Direct Code
<input type="radio"/>	Block Display LocoView	<input type="radio"/>	Indirect Code	<input type="radio"/>	Indirect Code
<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate	<input type="radio"/>	Contact 1	<input type="radio"/>	Contact 1
<input type="radio"/>	1 - On	<input type="radio"/>	Contact 2	<input type="radio"/>	Contact 2
<input type="radio"/>	1 - Off	<input checked="" type="checkbox"/>	Rel Address	<input checked="" type="checkbox"/>	W Address
<input type="radio"/>	2 - On Fixed Contact	<input type="checkbox"/>		<input type="checkbox"/>	
<input type="radio"/>	2 - Off				
<input type="checkbox"/>	4 Way Port				
<input type="radio"/>	1 Soft Reset				
<input type="radio"/>	1 Hard Reset Pulse Contact				
<input type="radio"/>	2 Soft Reset				
<input type="radio"/>	2 Hard Reset				
B	Address	B	Address	B	Address

Setting for Section C

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Output

- Block Occupancy
- Block Display LocoView
- Blinking Rate
- 1 - On
- 1 - Off Fixed Contact
- 2 - On
- 2 - Off
- 4 Way Port
- 1 Soft Reset
- 1 Hard Reset Pulse Contact
- 2 Soft Reset
- 2 Hard Reset

C Address

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Off Extra Opcode 1

- Direct Code
- Indirect Code
- Contact 1
- Contact 2

Address

C Address

Setting for Section D

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Output

- Block Occupancy
- Block Display LocoView
- Blinking Rate
- 1 - On
- 1 - Off Fixed Contact
- 2 - On
- 2 - Off
- 4 Way Port
- 1 Soft Reset
- 1 Hard Reset Pulse Contact
- 2 Soft Reset
- 2 Hard Reset

D Address

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Off Extra Opcode 1

- Direct Code
- Indirect Code
- Contact 1
- Contact 2

Rel Address

D Address

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Off Extra Opcode 2

- Direct Code
- Indirect Code
- Contact 1
- Contact 2

W Address

D Address

Setting for Section E

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Output

- Block Occupancy
- Block Display LocoView
- Blinking Rate
- 1 - On
- 1 - Off Fixed Contact
- 2 - On
- 2 - Off
- 4 Way Port
- 1 Soft Reset
- 1 Hard Reset Pulse Contact
- 2 Soft Reset
- 2 Hard Reset

E Address

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Off Extra Opcode 1

Direct Code

Indirect Code

Contact 1

Contact 2

Rel Address

D Address

Setting for Section F

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Output

- Block Occupancy
- Block Display LocoView
- Blinking Rate
- 1 - On
- 1 - Off Fixed Contact
- 2 - On
- 2 - Off
- 4 Way Port
- 1 Soft Reset
- 1 Hard Reset Pulse Contact
- 2 Soft Reset
- 2 Hard Reset

F Address

(Only for loop 1 direction)

Input

- Block Detection Active Low
- Block Detection Active High
- Block Detection Delay
- Toggle Switch
- Push Button Active Low
- Push Button Active High
- Direct Indirect Code
- Switch Point Feedback
- Contact 1 Point Feedback
- Contact 2 Point Feedback
- Double Input

Off Extra Opcode 1

Direct Code

Indirect Code

Contact 1

Contact 2

W Address

F Address

Setting for LocoRelay B (NOT for loop 1 direction)

<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active High
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Delay
<input type="checkbox"/>	<input type="checkbox"/>	Toggle Switch
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="checkbox"/>	<input type="checkbox"/>	Switch Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 1 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 2 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Double Input
Output		
<input type="checkbox"/>	<input type="checkbox"/>	Block Occupancy
<input type="checkbox"/>	<input type="checkbox"/>	Block Display LocoView
<input type="checkbox"/>	<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate
<input type="checkbox"/>	<input type="checkbox"/>	1 - On
<input type="checkbox"/>	<input type="checkbox"/>	1 - Off Fixed Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 - On
<input type="checkbox"/>	<input type="checkbox"/>	2 - Off
<input type="checkbox"/>	<input type="checkbox"/>	4 Way Port
<input type="checkbox"/>	<input type="checkbox"/>	1 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	1 Hard Reset Pulse Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	2 Hard Reset
Rel	Rel	Address

Setting for LocoRelay C

<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active High
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Delay
<input type="checkbox"/>	<input type="checkbox"/>	Toggle Switch
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="checkbox"/>	<input type="checkbox"/>	Switch Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 1 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 2 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Double Input
Output		
<input type="checkbox"/>	<input type="checkbox"/>	Block Occupancy
<input type="checkbox"/>	<input type="checkbox"/>	Block Display LocoView
<input type="checkbox"/>	<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate
<input type="checkbox"/>	<input type="checkbox"/>	1 - On
<input type="checkbox"/>	<input type="checkbox"/>	1 - Off Fixed Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 - On
<input type="checkbox"/>	<input type="checkbox"/>	2 - Off
<input type="checkbox"/>	<input type="checkbox"/>	4 Way Port
<input type="checkbox"/>	<input type="checkbox"/>	1 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	1 Hard Reset Pulse Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	2 Hard Reset
Rel	Rel	Address

Setting for LocoRelay D

<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active High
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Delay
<input type="checkbox"/>	<input type="checkbox"/>	Toggle Switch
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="checkbox"/>	<input type="checkbox"/>	Switch Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 1 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 2 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Double Input
Output		
<input type="checkbox"/>	<input type="checkbox"/>	Block Occupancy
<input type="checkbox"/>	<input type="checkbox"/>	Block Display LocoView
<input type="checkbox"/>	<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate
<input type="checkbox"/>	<input type="checkbox"/>	1 - On
<input type="checkbox"/>	<input type="checkbox"/>	1 - Off Fixed Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 - On
<input type="checkbox"/>	<input type="checkbox"/>	2 - Off
<input type="checkbox"/>	<input type="checkbox"/>	4 Way Port
<input type="checkbox"/>	<input type="checkbox"/>	1 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	1 Hard Reset Pulse Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	2 Hard Reset
Rel	Rel	Address

Set Switch

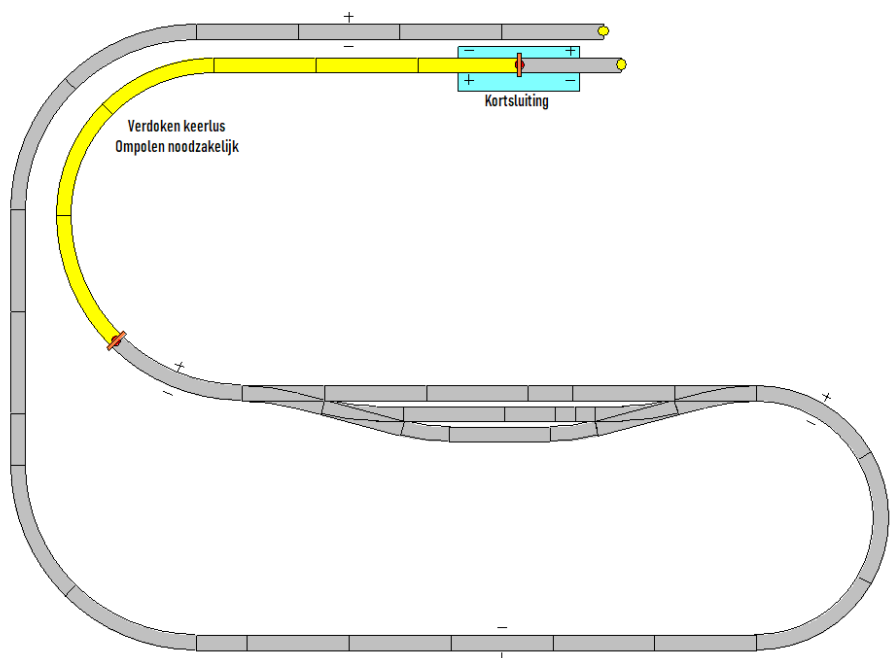
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Active High
<input type="checkbox"/>	<input type="checkbox"/>	Block Detection Delay
<input type="checkbox"/>	<input type="checkbox"/>	Toggle Switch
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active Low
<input type="checkbox"/>	<input type="checkbox"/>	Push Button Active High
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> Indirect Code
<input type="checkbox"/>	<input type="checkbox"/>	Switch Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 1 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Contact 2 Point Feedback
<input type="checkbox"/>	<input type="checkbox"/>	Double Input
Output		
<input type="checkbox"/>	<input type="checkbox"/>	Block Occupancy
<input type="checkbox"/>	<input type="checkbox"/>	Block Display LocoView
<input type="checkbox"/>	<input type="checkbox"/>	Blinking <input type="text" value="0"/> Rate
<input type="checkbox"/>	<input type="checkbox"/>	1 - On
<input type="checkbox"/>	<input type="checkbox"/>	1 - Off Fixed Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 - On
<input type="checkbox"/>	<input type="checkbox"/>	2 - Off
<input type="checkbox"/>	<input type="checkbox"/>	4 Way Port
<input type="checkbox"/>	<input type="checkbox"/>	1 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	1 Hard Reset Pulse Contact
<input type="checkbox"/>	<input type="checkbox"/>	2 Soft Reset
<input type="checkbox"/>	<input type="checkbox"/>	2 Hard Reset
W	W	Address

Reverse pole

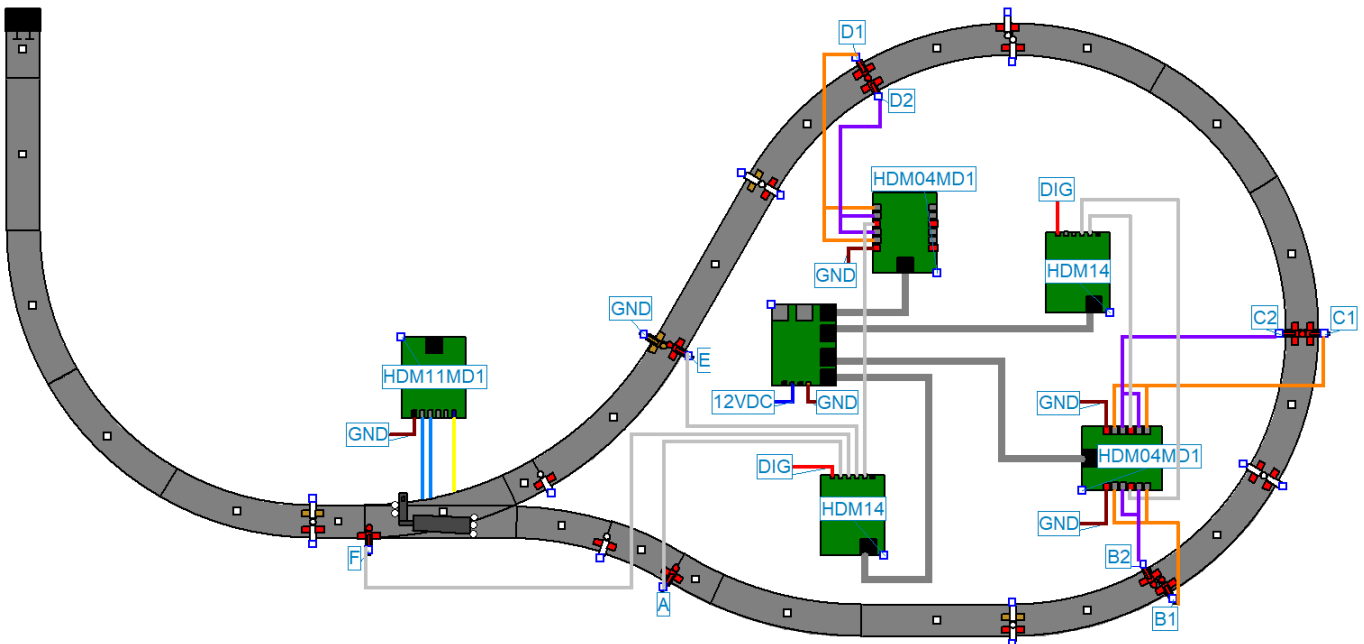
A turning loop situation will not always occur at a switch. That is why we have already mentioned a hidden turning loop above. The drawing below shows such a situation. You can see the origin of the short circuit in the blue rectangle. So, we have to make power

and mass interruptions ().

The yellow rails will therefore have to be reversed as explained above. In that case there is no exchange.



Turning loop example to continue driving in 2 directions



LocoIO settings

LocoHDL Module SV Settings

Load SV's Save SV's Print Comm port Debug Address List Info Language Mode MultiPort Central Exit

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Port Definition
 Port not used
 Input
 Block Detection Active Low
 Block Detection Active High
 Block Detection Delay 32
 Toggle Switch
 Push Button Active Low
 Push Button Active High
 Direct Indirect Code
 Switch Point Feedback
 Contact 1 Point Feedback
 Contact 2 Point Feedback
 Double Input
 Output
 Block Occupancy
 Block Display LocoView
 Blinking 0 Rate
 1 - On
 1 - Off Fixed Contact
 2 - On
 2 - Off
 4 Way Port
 1 Soft Reset
 1 Hard Reset Pulse Contact
 2 Soft Reset
 2 Hard Reset

Address	Configuration	Value-1	Value-2	Read	Write
1	Rel	140	0	R	W
2	Rel	140	9	R	W
3	Rel	0	32	R	W
4	Rel	0	0	R	W
5	1	0	0	R	W
6	1	0	0	R	W
7	C	27	48	R	W
8	B	27	16	R	W
9	Rel	140	0	R	W
10	Rel	140	0	R	W
11	Rel	140	0	R	W
12	Rel	140	0	R	W
13	Rel	140	0	R	W
14	A	27	48	R	W
15	E	27	16	R	W
16	F	27	16	R	W
	D	27	16	R	W

Module Settings

- Special Ports
- Extra Opcode 1
- Extra Opcode 2
- Fix Code for Push Buttons
- Alternating Code for Push Buttons
- Input Status by Power-ON
- Check All Inputs
- Check Block and Point Feedbacks
- Check Block Feedbacks

Address 90 / 1 R Read All Pic version 154 LocoIO Address 90 / 1 W Write All Clear Init

Com 6 - 57600 Status: LB version: LB 165 - BLUE 4.0.6

