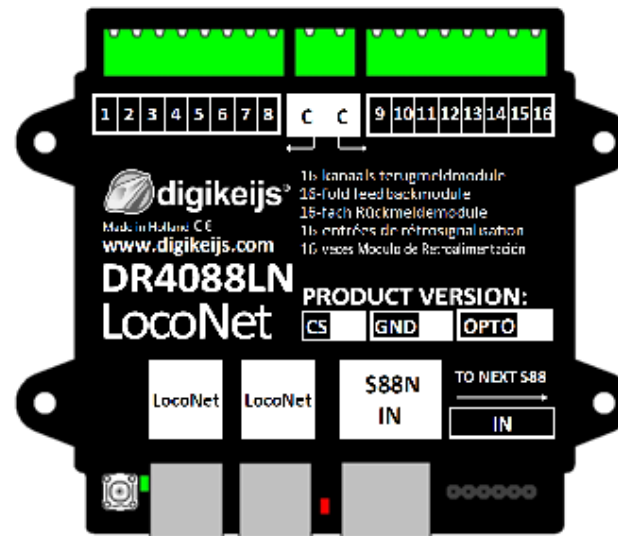


DR 4088LN-xx

Instruction manual

(2021-04-21)



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1.2 Warranty and warranty conditions

All our products come with a 24-month manufacturer's warranty. Please read these operating instructions carefully.

Damage to the product caused by non-compliance with these instructions will invalidate the warranty.

ATTENTION: The warranty is void if the housing of the product is opened.

1.3 Legal information

Printing errors and mistakes, technical or other changes as well as changes in the availability of individual products are expressly reserved.

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2.0 Product overview

2.1 General product information

The DR4088LN-xx is a feedback module that can be connected to the control panel via LocoNet®.

The DR4088LN-xx has 16 feedback inputs.

The DR4088LN-xx is available as CS version (current sensor 2-wire track), OPTO version (connection of reed contacts, 3-wire track signal to track ground) and GND version (3-wire track).

Important! DR4088GND 3-wire operation:

Due to the H-bridge (track output) in the DR50xx, feedback devices in the DR4088GND version must not be used against track ground, as is usually the case with 3-wire tracks. This inevitably leads to the destruction of the DR50xx.

If a 3-wire driver still wants to drive with the DR50xx and report back against track ground, the DR4088OPTO can be used.

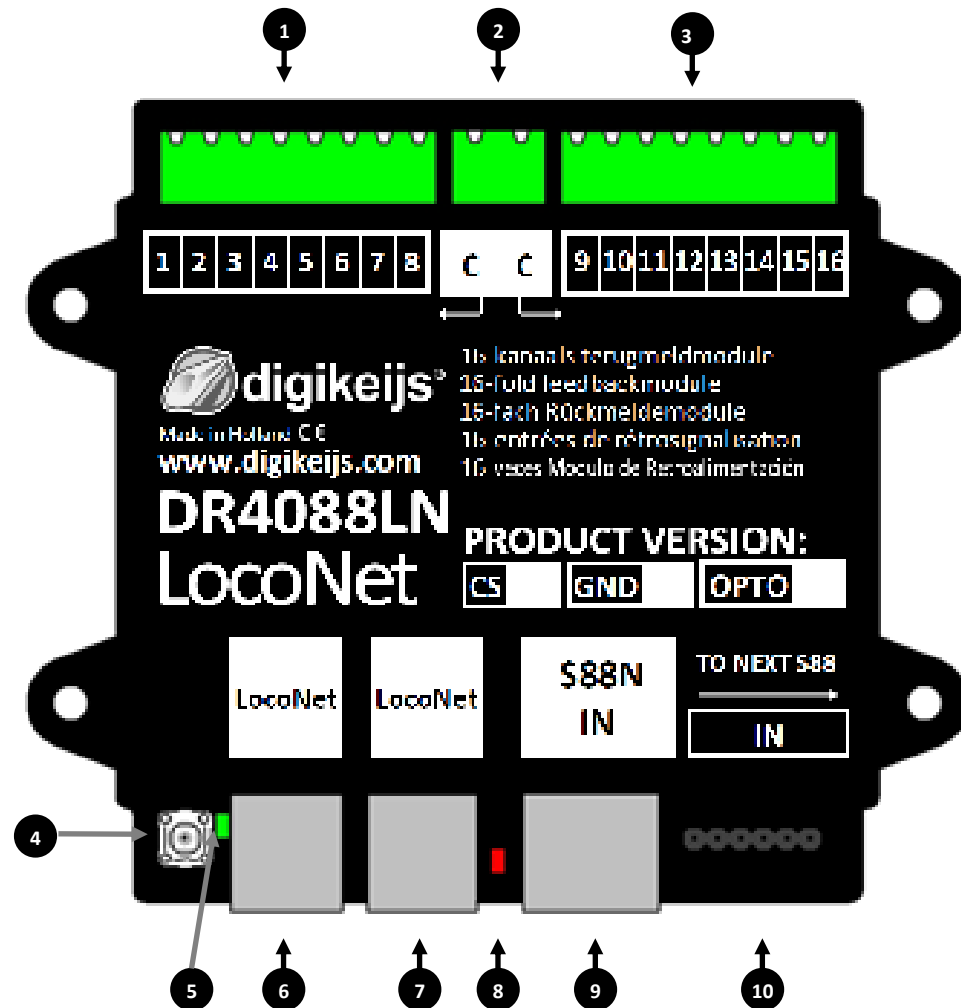
2.2 Technical specifications

The connection terminals of the 16 feedback units are designed for a cross-section of 0.5mm², the two terminals for "C" are designed for a cross-section of 0.75mm².

	Number of inputs	Suitable for	Minimum load for safe reporting	Max. load per contact Load per contact	Max. load per contact Load capacity per contact for max. 100 ms	Peak load for 8 feedbacks at "C" total.
DR4088CS	2 x 8	2 conductors	2 mA	2 A	5 A	6 A an „C“
DR4088OPTO	2 x 8	3 conductors when using the DR50xx	-	-		-
DR4088GND	2 x 8	3 conductors				

2.3 Hardware Overview

- 1 Connection feedback 1 to 8
- 2 Common connection "C" for the right or left detector group.
- 3 Connection feedback 9 bis16
- 4 Programming button
- 5 **green LED**
(flashes as soon as the power supply is available)
In addition, the LED signals by different flashing cycles the two programming levels.
- 6 LocoNet® Connector
- 7 LocoNet® Connector
- 8 **red LED**
(flashing during load or activity at S88N connection)
- 9 S88N In Connector
- 10 S88 In Connector



3.0 Programming

First, something fundamental about LocoNet®:

- The LocoNet® is a universal bus system.
- The LocoNet® supports a maximum of 2048 feedback addresses.
- The addresses are always stored in the feedback module.
- The LocoNet® can be set up as a tree, star or bus (line) network. A combination of the individual topologies is permissible.
- Please note that a ring structure is not permitted.

DR DR4088LN-xx does not have **LNCV's** as known from other manufacturers. Therefore no **LNCV's** can be read out or changed. The DR4088LN-xx must only be "told" the start address and the number of feedbacks via a switch command!

3.1 Programming DR4088LN-xx without further DR4088 on the S88N

3.1.1 Programming with the DR5000

1. Connect the DR5000 to the DR4088LN-xx to be programmed.
2. (Normally it is not necessary to disconnect other feedback modules from LocoNet®.
3. Open the DR5000 Tool.
4. First the DR4088LN-xx must be assigned the start address.
5. Open the turnout control panel that contains the desired start address that the DR4088LN-xx is to receive.
6. Press the programming button on the DR4088LN-xx. The green LED starts flashing to indicate that the DR4088LN-xx is in programming mode.
7. To assign the start address, switch the turnout address e.g. 1 once (i.e. only red or green!).
8. The green LED on the DR4088LN-xx now flashes in a different cycle to signal that the DR4088LN-xx next expects the number of feedback signals. The number of feedback units is again sent to the DR4088LN-xx via a turnout command.
9. Normally, if no DR4088 (S88) is connected to the DR4088LN-xx, this is address 16.
10. In the DR5000 tool, call the turnout control panel which contains the address corresponding to the number of feedback signals.
11. Normally, this is address 16. Again, only red or green switching applies here.
12. The DR4088LN-xx automatically terminates the programming mode and is now programmed with the start address and the number of feedbacks.

Important! When using the LN or RB module, the ext88N IN number of 16 and 8 input modules must be set to 0 on the DR5000. This can be checked if in the feedback monitor row 1 and row 9 are white with blue and not red!

3.1.2 Programming with any control panel or app.

1. Connect the central unit to the DR4088LN-xx to be programmed.
2. (Normally it is not necessary to disconnect other feedback modules from LocoNet®.
3. First the DR4088LN-xx must be assigned the start address.
4. Open the turnout control panel which contains the desired start address which the DR4088LN-xx is to receive.
5. Depending on which control panel, handset controller or app is used for programming, either the corresponding turnout or the corresponding turnout control panel must be called at the control panel. With some App's a corresponding turnout with the desired address must be created.
6. Press the programming button on the DR4088LN-xx. The green LED starts flashing to indicate that the DR4088LN-xx is in programming mode.
7. To assign the start address, switch the turnout address e.g. 1 once (i.e. only red or green!).
8. The green LED on the DR4088LN-xx now flashes in a different cycle and signals that the DR4088LN-xx next expects the number of feedback signals. The number of feedbacks is again sent to the DR4088LN-xx via a switch command.
9. Normally, if no DR4088 (S88) is connected to the DR4088LN-xx, this is address 16 .
10. At the central station, at the handset controller or in the app, call up the turnout control panel which contains the address corresponding to the number of feedback signals.
11. Normally this is the address 16. Again, only red or green switching applies.
12. The DR4088LN-xx automatically terminates the programming mode and is now programmed with the start address and the number of feedbacks..

3.2 Programming DR4088LN-xx with further DR4088 at the S88(N) connection

3.2.1 Programming with the DR5000

1. connect the DR5000 to the DR4088LN-xx to be programmed
(normally it is not necessary to disconnect other feedback modules from the LocoNet®)
2. open the DR5000 tool.
3. First, the DR4088LN-xx must be assigned the start address.
Open the turnout control panel that contains the desired start address that the DR4088LN-xx is to receive.
4. Press the programming button on the DR4088LN-xx. The green LED starts flashing to indicate that the DR4088LN-xx is in programming mode.
5. to assign the start address switch the turnout address e.g. 1 once (**so only red or green!**).
6. The green LED on the DR4088LN-xx now flashes in a different clock pulse to indicate that the DR4088LN-xx is expecting the number of feedbacks next.
The number of feedback signals is again sent to the DR4088LN-xx via a switch command.

Example:

DR4088LN-xx	DR4088	
Start address 1	Number of feedback units 32	The switch address 32 must be sent here.

DR4088LN-xx	2x DR4088S	
Start address 1	Number of feedback units 48	The switch address 48 must be sent here.

R4088LN-xx	3x DR4088	
Start address 1	Number of feedback sensors 64	The switch address 64 must be sent here
.etc.		

7. In the DR5000 tool, call the turnout control panel containing the address corresponding to the number of feedback signals. Again, **only red or green** switching applies. The DR4088LN-xx automatically terminates the programming mode and is now programmed with the start address and the number of feedbacks.

Attention! At the S88 connection of the DR4088LN-xx A maximum of 15 DR4088 can be connected to the S88 connection of the DR4088LN-xx. This results in a maximum number of 256 feedback contacts that a DR4088LN-xx can manage.

Example: DR4088LN-xx 15x DR4088 Start address 1 **Occupied feedback device Address range 1 - 256**

3.2.2 Programming with any control panel or app.

1. Connect the central unit to the DR4088LN-xx to be programmed (normally it is not necessary to disconnect other feedback modules from the LocoNet®).
2. First, the DR4088LN-xx must be assigned the start address.
Open the turnout control panel that contains the desired start address that the DR4088LN-xx is to receive. Depending on which control panel, handset or app is used for programming, either the corresponding turnout or the corresponding turnout control panel must be called at the control panel. With some App's a corresponding switch with the desired address must be created.
3. Press the programming button on the DR4088LN-xx. The green LED starts flashing to indicate that the DR4088LN-xx is in programming mode.
4. To assign the start address switch the switch address e.g. 1 once (**so only red or green!**).
5. The green LED on the DR4088LN-xx now flashes in a different clock pulse and signals that the DR4088LN-xx next expects the number of feedbacks. The number of feedback signals is again sent to the DR4088LN-xx via a switch command.

Example:

DR4088LN-xx	DR4088	
Start address 1	Number of feedback units 32	The switch address 32 must be sent here.

DR4088LN-xx	2x DR4088	
Start address 1	Number of feedback units 48	The switch address 48 must be sent here.

DR4088LN-xx	3x DR4088	
Start address 1	Number of feedback sensors 64	The switch address 64 must be sent here.

etc.

6. At the control panel, at the handset controller or in the app, call up the turnout control panel which contains the address corresponding to the number of feedbacks.
With some App's a corresponding switch with the desired address must be created. Again, **only red or green** switching applies.
7. The DR4088LN-xx automatically terminates the programming mode and is now programmed with the start address and the number of feedback devices.

Attention! At the S88 connection of the DR4088LN-xx A maximum of 15 DR4088 can be connected to the S88 connection of the DR4088LN-xx. This results in a maximum number of 256 feedback contacts that a DR4088LN-xx can manage.

Example: DR4088LN-xx 15x DR4088 Start address 1 **Occupied feedback device Address range 1 - 256**

3.3 Reset DR4088LN-xx

Important! The DR4088LN-xx has no function to reset to factory settings!

The DR4088LN-xx has no function for resetting to factory settings! This is also not necessary because no other functions can be set in the DR4088LN-xx except the start address and the number of response addresses.

To reset the response address back to the basic setting 1, it is sufficient to send it again to the DR4088 LN-xx as described above. In the second step, the number of feedbacks must be reset to 16 as described above. Further steps are not necessary.

4.0 Connection examples

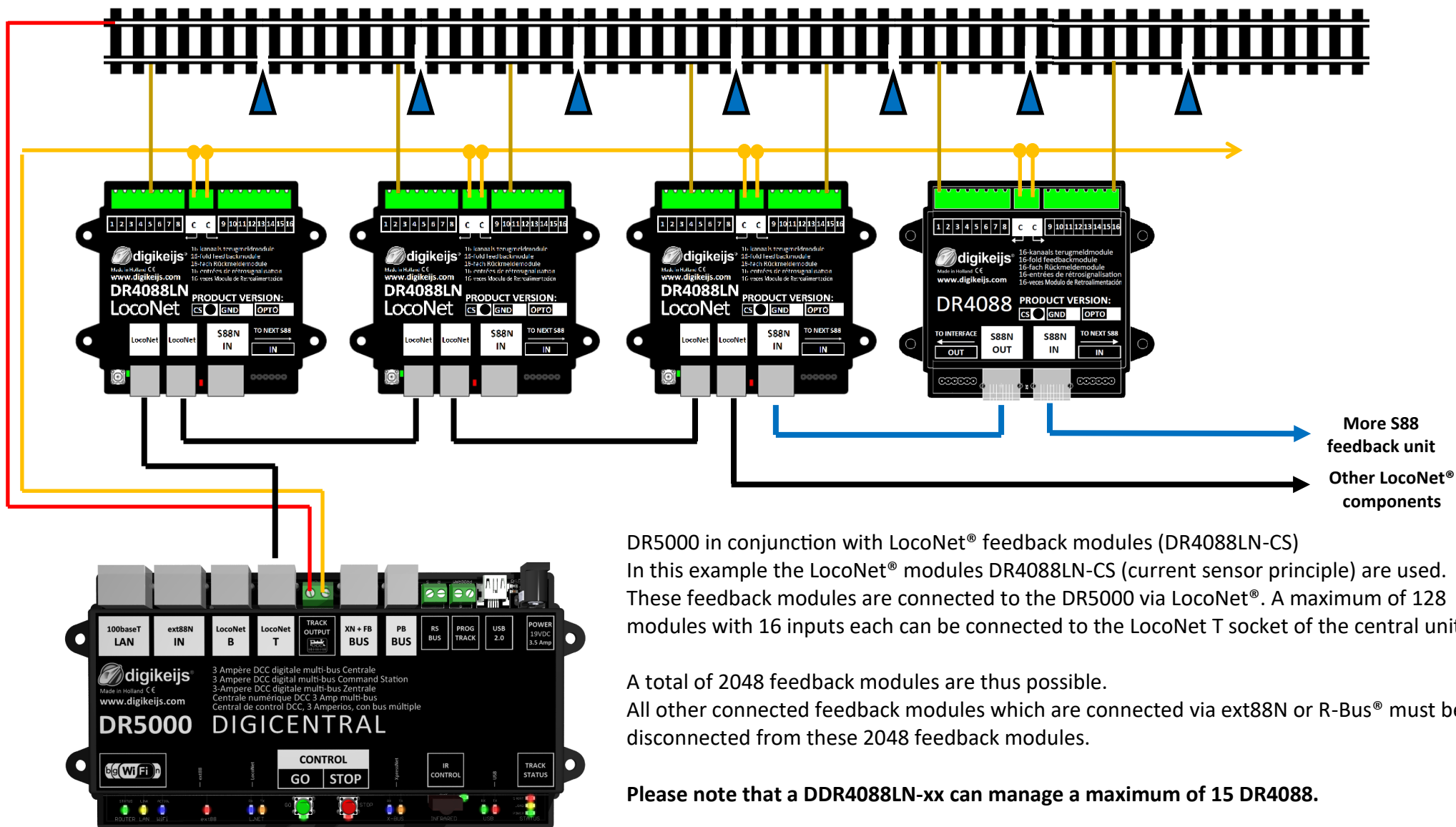
In this chapter you will find some connection examples for the DR4088LN-xx. Please note that we are not able to show all possibilities that exist.

Important! DR4088LN-GND 3-wire operation DR4088LN-GND 3-wire operation:

Due to the H-bridge (track output) in the DR50xx, feedback devices in the DR4088LN-GND version must not be used against track ground, as is usually the case with 3-wire tracks. This inevitably leads to the destruction of the DR50xx.

If a 3-wire driver still wants to drive with the DR5000 and report back against track ground, the DR4088OPTO can be used.

4.1 Feedback modules DR4088LN-CS; 2-wire track

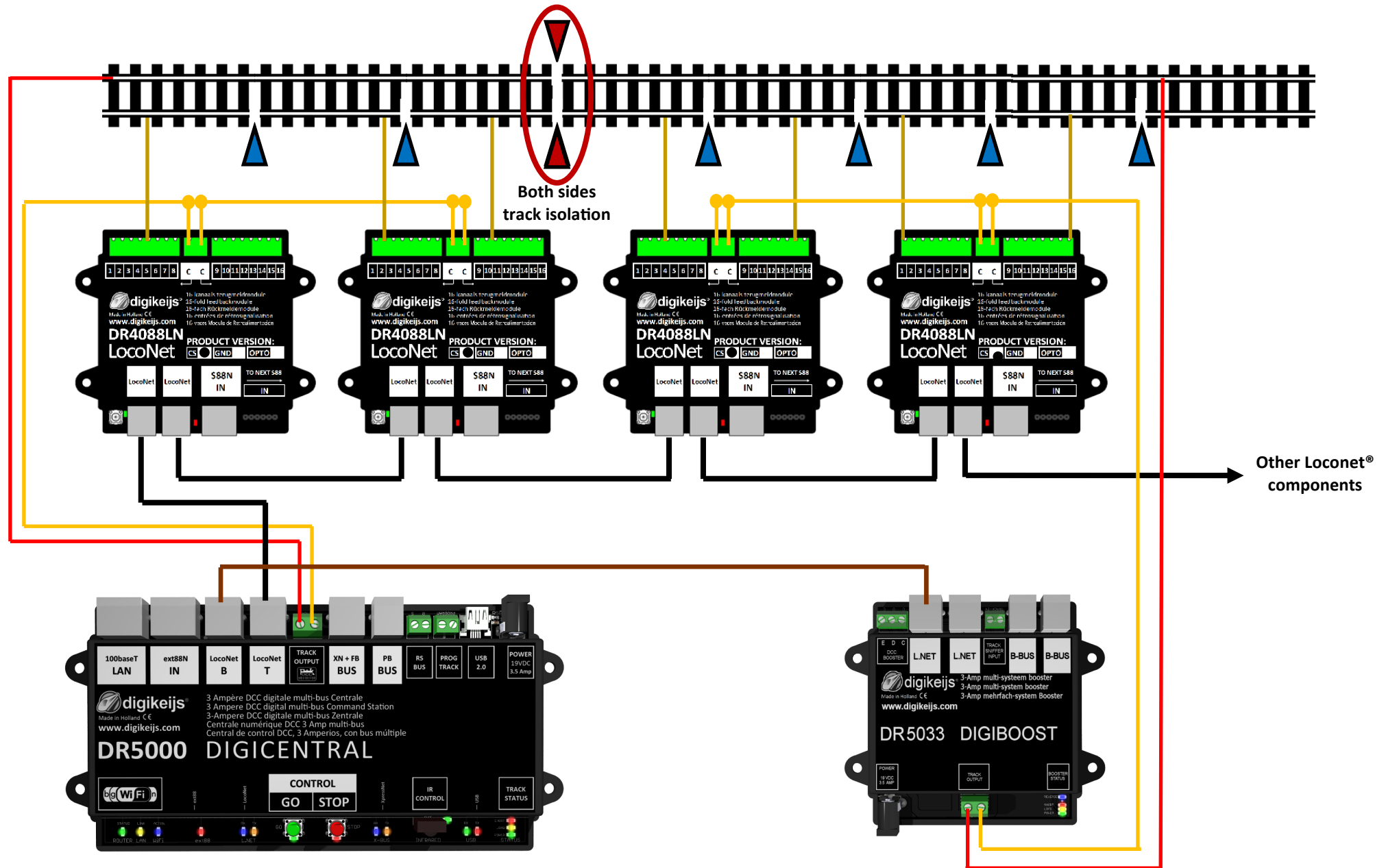


DR5000 in conjunction with LocoNet® feedback modules (DR4088LN-CS)
 In this example the LocoNet® modules DR4088LN-CS (current sensor principle) are used. These feedback modules are connected to the DR5000 via LocoNet®. A maximum of 128 modules with 16 inputs each can be connected to the LocoNet T socket of the central unit.

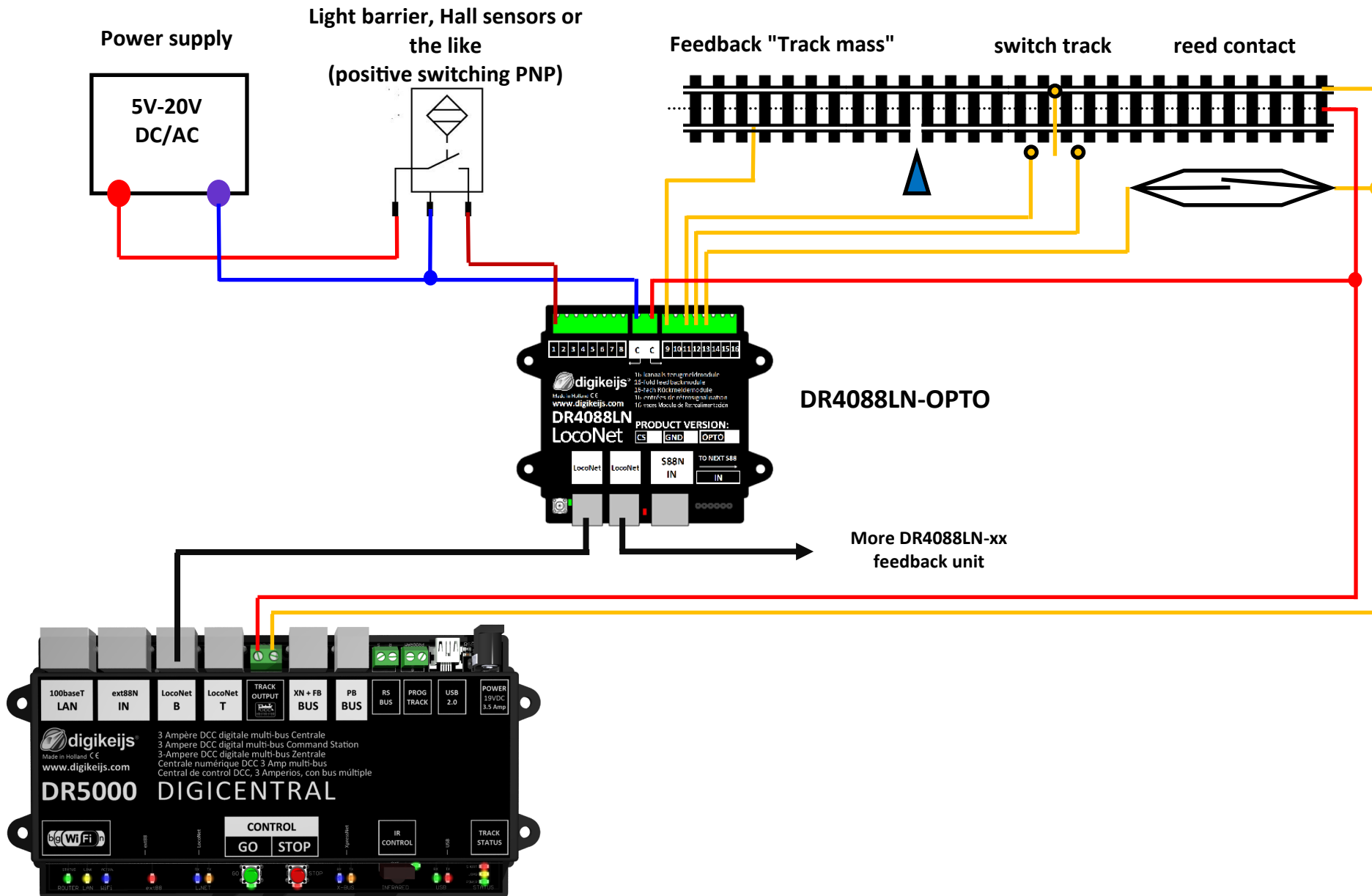
A total of 2048 feedback modules are thus possible.
 All other connected feedback modules which are connected via ext88N or R-Bus® must be disconnected from these 2048 feedback modules.

Please note that a DDR4088LN-xx can manage a maximum of 15 DR4088.

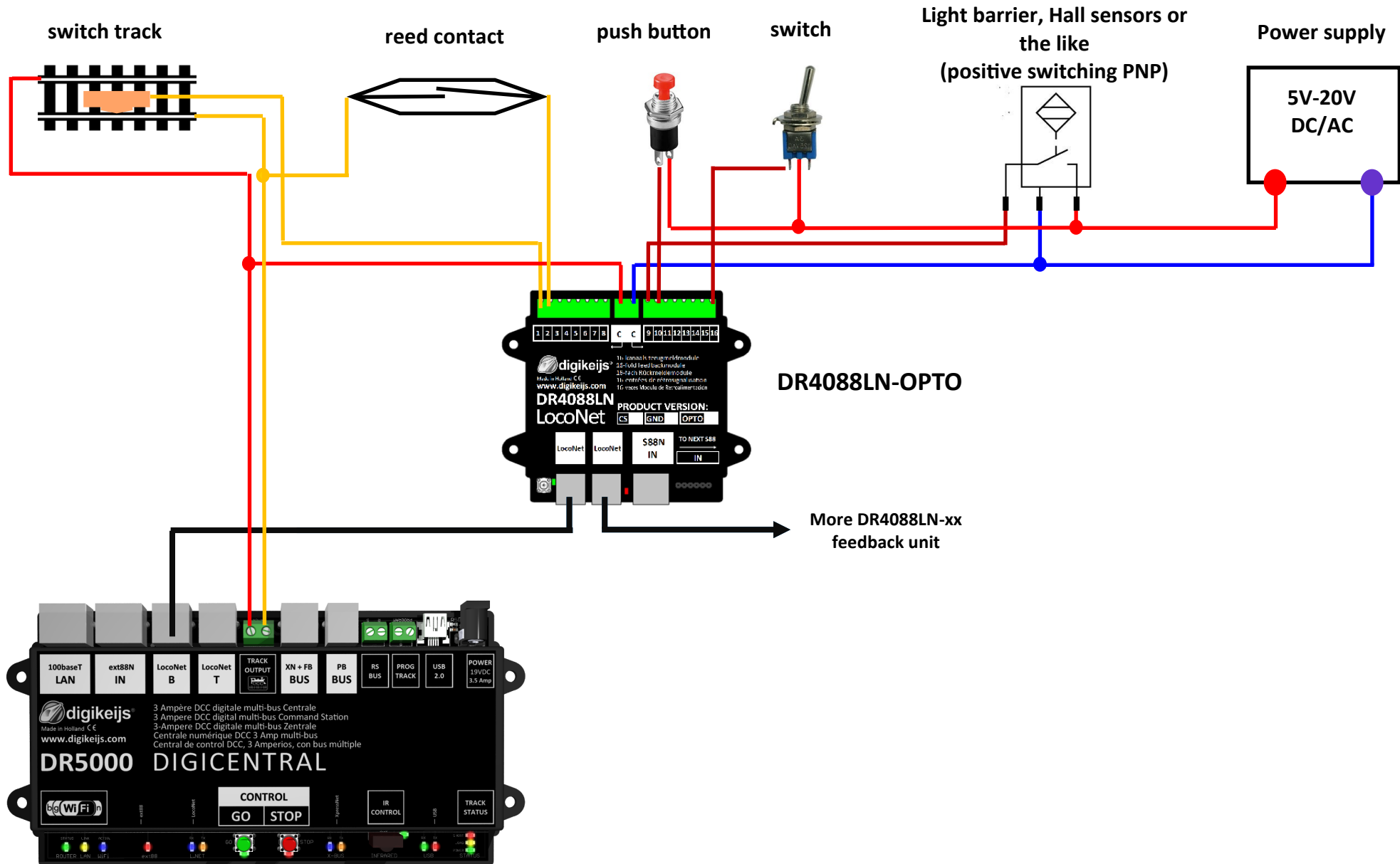
4.2 Feedback modules DR4088LN-CS and DR5033 Booster; 2-wire track



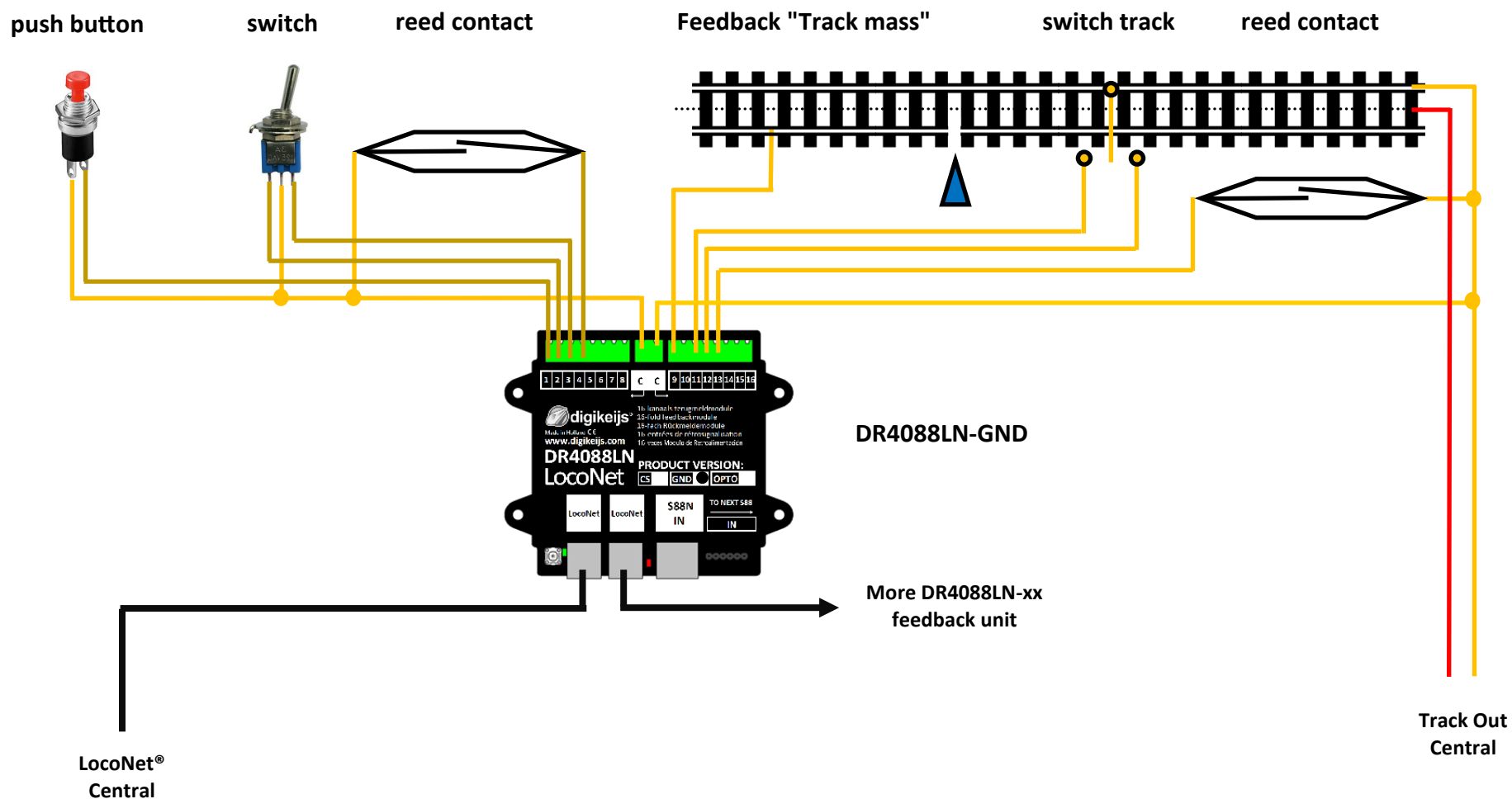
4.3 Feedback modules DR4088LN-OPTO; Hall sensors, 3-wire track



4.4 Feedback modules DR4088LN-OPTO; switch track, 2-wire track



4.5 Feedback modules DR4088LN-GND; switches, buttons, reed contacts



Important! DR4088LN-GND 3-wire operation DR4088LN-GND 3-wire operation:

Due to the H-bridge (track output) in the DR50xx, feedback devices in the DR4088LN-GND version must not be used against track ground, as is usually the case with 3-wire tracks. This inevitably leads to the destruction of the DR50xx.

If a 3-wire driver still wants to drive with the DR5000 and report back against track ground, the DR4088OPTO can be used.