



Feedback Railcom module RB 5350



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Application

The RB5350 module is used to receive information about the occupancy on the sections of the tracks, along with information about the address of the locomotive located on exact section by reading the data transmitted using Railcom® protocol. Received information transmitted by Standard LocoNet® bus commands.

Basic functions:

- Ability to monitor up to 16 independent track sections
- 2 opto-isolated, independent input groups with the option to connect two boosters
- 8 additional 5V logic inputs with a separate feedback address
- Automatic braking system via LocoNet (more here)
- Maximum load per input: 5A
- DCC bus status indicator and last activated input indicator
- RailCom® support: address reading, PoM (Programming on Main)
- LNCV support (Article Number 53500)
- Address programming button
- Firmware update capability via the Railbox: Railroad Control application

Technical parameters:

- Current consumption from the LocoNet® bus: 25mA
- Maximum load per track input: 5A
- Maximum load per input group: 7A
- Input sensitivity: 2.2mA
- Maximum load on the external 5V bus: 50mA
- Module dimensions: 88 × 104 × 22 mm.

Decoder STS LED light color interpretation:

Important: Below is a description of the STS LED indication, which for convenience is shown separately for the upper and lower STS LEDs.

Upper STS LED



GREEN SOLID – Interface DCC is connected and active

Color is displayed only when no information is received via RailCom®.



BLUE SOLID or BLINKING – Module is receiving information via RailCom®

Color is displayed when information is received via RailCom®.



BIAŁY STAŁY – **Decoder programming mode.** To enter this mode, press and hold the PROG button for 2 sec. After successfully sending the address, the LED will automatically turn off and will again indicate the mode of operation of the decoder.



Occupancy indication (lower STS LED)



RED SOLID – Occupancy of connected track section by locomotive/train

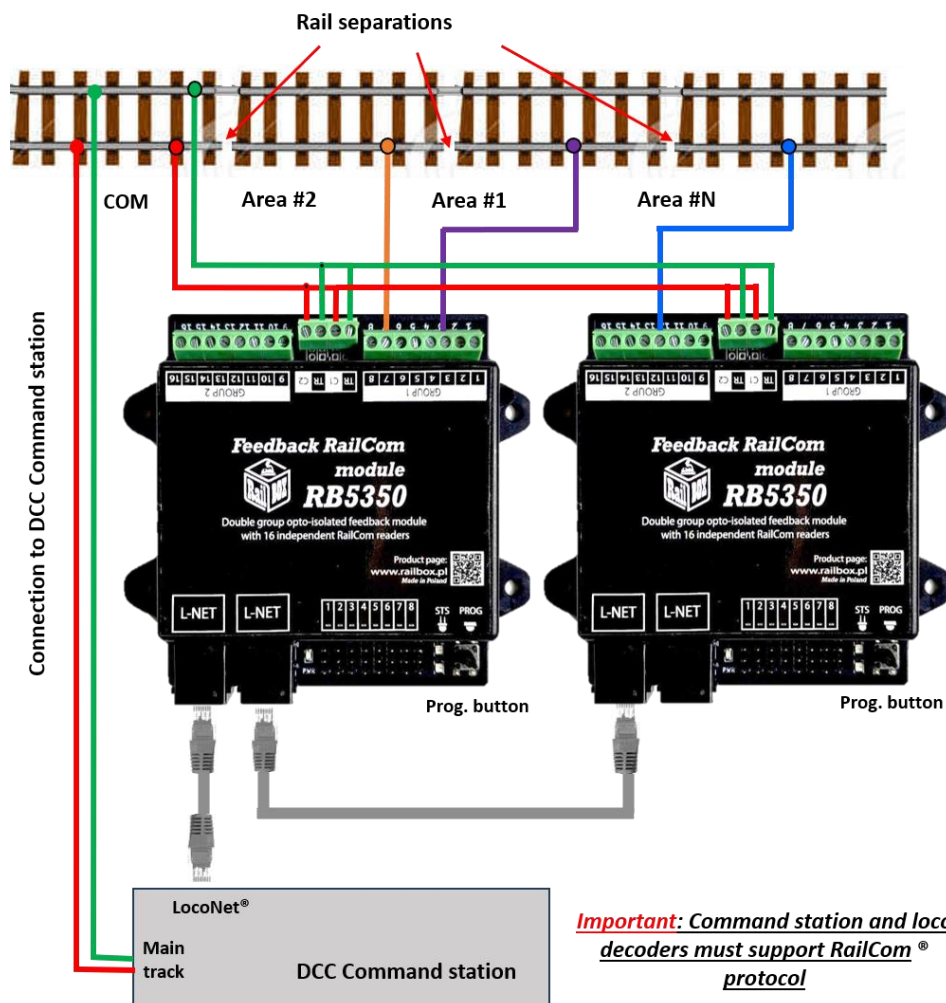
MAGENTA BLINKING – **Automatic braking mode.** The lower STS LED blinks briefly once when the automatic braking of the locomotive is activated on the configured section.

LED is OFF – The last switched input (track section) is now free.

Connection

The module should be connected to track sections in the same way as a standard feedback module. Specifically, each input should be connected to an isolated section of one rail, and the rail of the same polarity from the DCC command station or booster should be connected to the corresponding “Cx” input (C1 or C2). The other rail from the DCC command station or booster should be connected to the “TR” input.

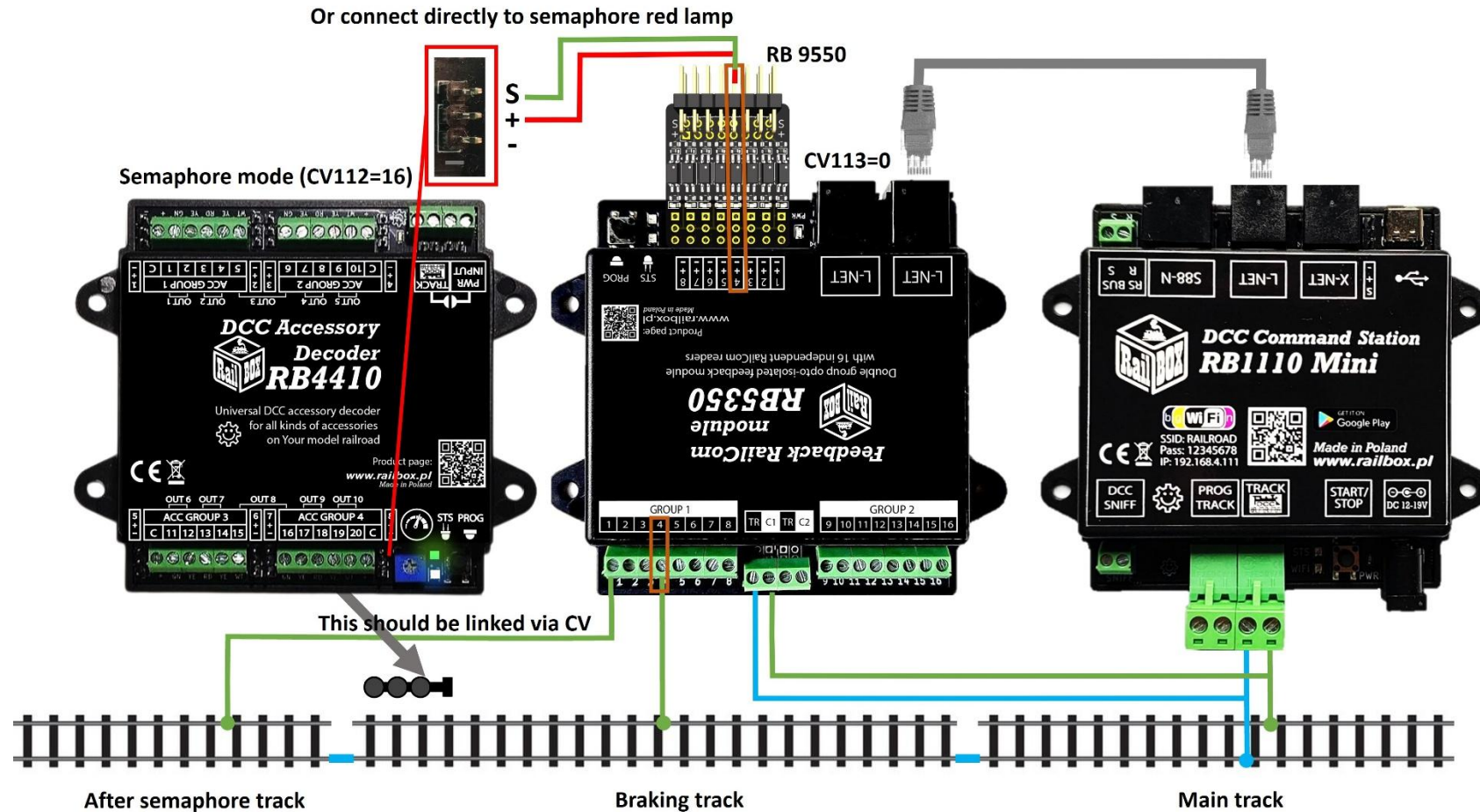
RB5350 Feedback module connection to the DCC Command station and the tracks





Automatic braking locomotive/train braking system with RB5350 module (Connection diagram)

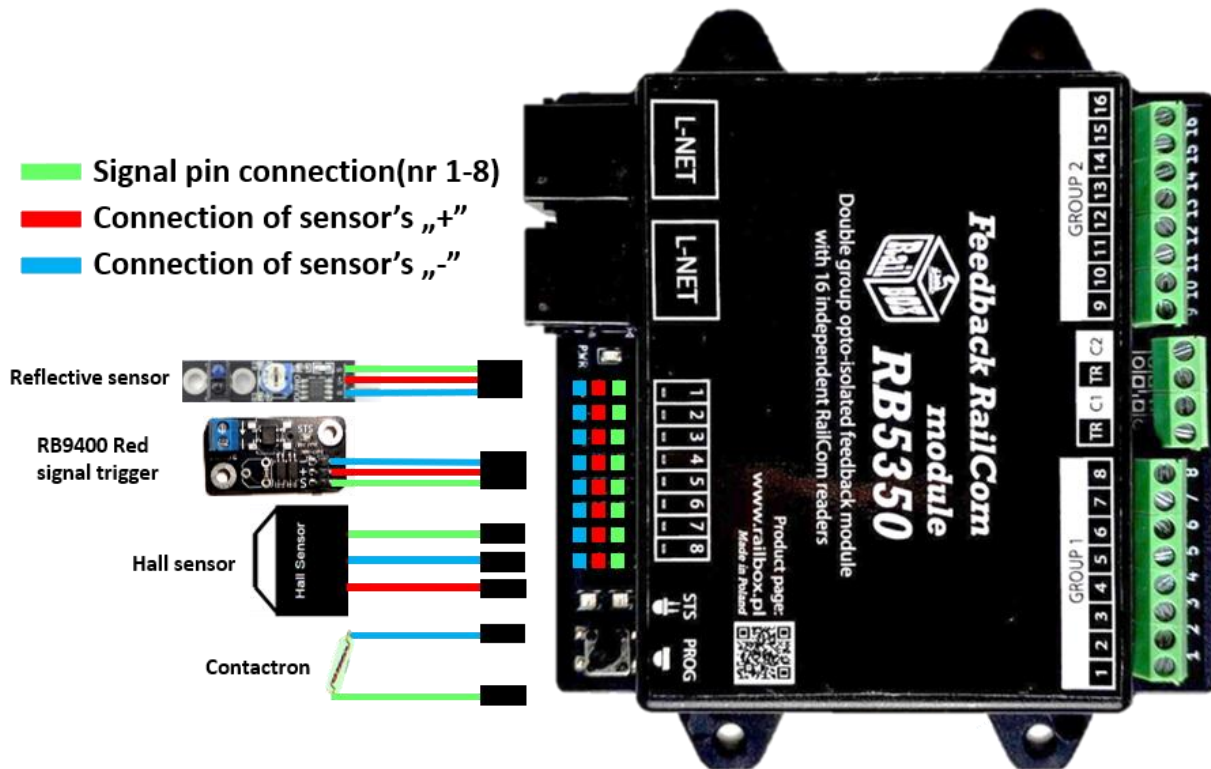
Note: The RB9550 input adapter must be used to implement the automatic braking system. To enable the system, make sure the CV113 is set to 0.



Connecting feedback sensors to the RB5350 module

Any type of sensor equipped with a logic output or an open-collector output can be connected to the RB5350 module, for example: a reed switch, Hall-effect sensor, current sensor, infrared (IR) sensor, etc.

Note: Before connecting the sensors to the pin inputs of the module, make sure that the base address of the decoder has been assigned and the CV113 indicates the appropriate number (base address + 2).



Module programming

Module address programming

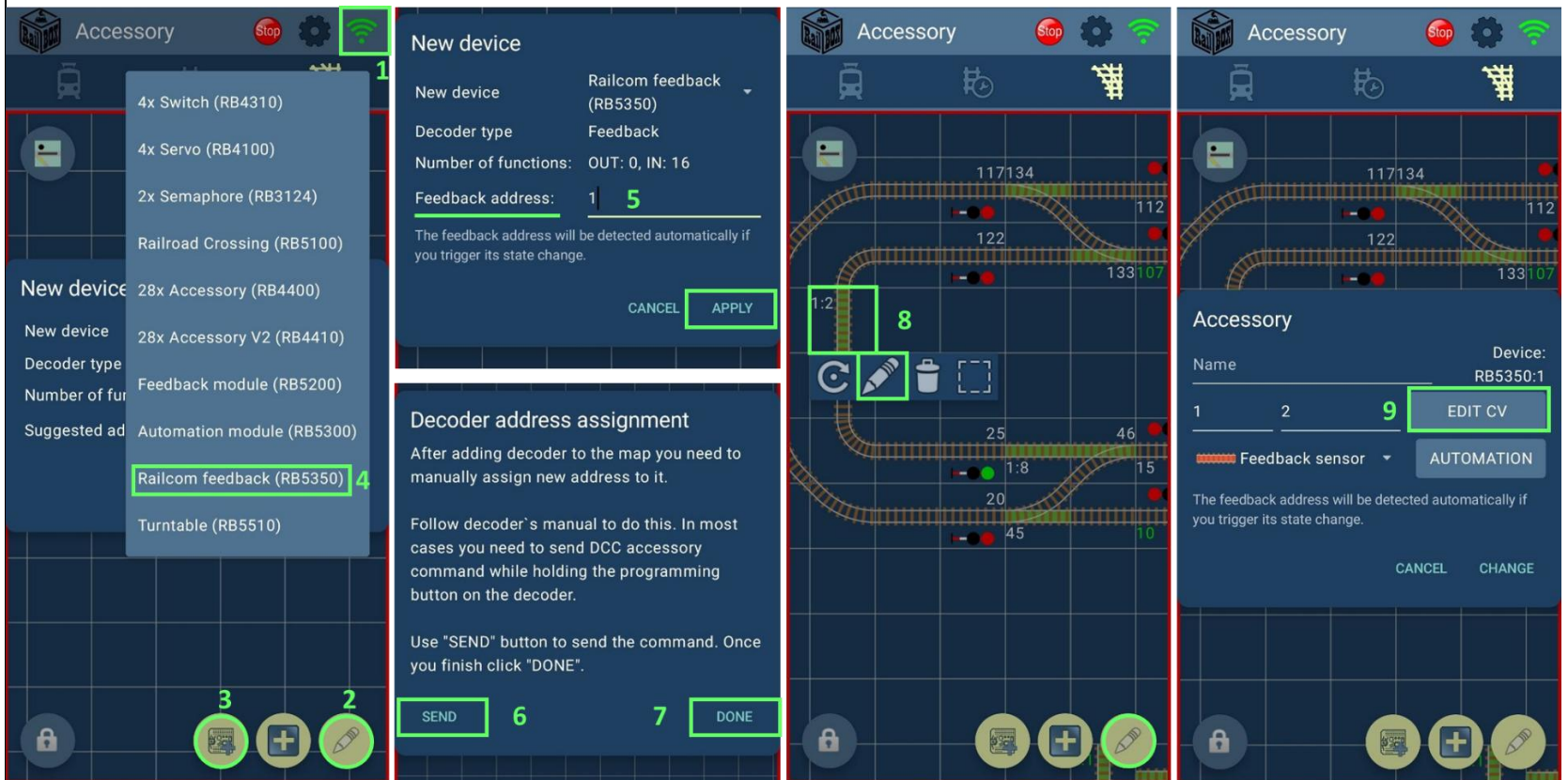
To program the module's base address (for track section inputs 1–16), follow these steps:

1. Enter the module programming mode by pressing and holding the button for 2 seconds. The upper STS LED should light up **WHITE**.
2. Switch the turnout with the address (*the decoder expects turnout commands according to the RCN-213 standard; first address = 4*) that is to be assigned as the module address. After this, the STS LED should change color, confirming that the address has been accepted and programming has been completed.



Configuring RB5350 in Railbox Railroad control mobile application

- 1 - Connect your DCC command station via Wi Fi in the RRC app
- 2 - Press The "Pencil" button on the map to go into edit mode.
- 3 - Press the displayed button "Add decoder"
- 4 - From the list of decoders, select the appropriate - RB5350.
- 5 - Change its address or use the suggested one, click "APPLY"
- 6 - Press the PROG button on the connected RB5350 until the White STS LED lights up. In the application, press "SEND" to assign the selected address to the module.
- 7 - Then press "DONE"
- 8 - When the feedback track elements appear on the map, move them in the appropriate places and connect with the rest of the tracks.





Configuration of automatic train braking in Railbox Railroad control mobile application

Note: This module allows you to configure this system on Command stations with LocoNet bus. This system is an alternative of the ABC system in loco decoders. The operation is based on an external signal, which can be transmitted by pin inputs 1-8 or via accessory address status. Depending on the current state of this signal (ACTIVE or INACTIVE), it is possible to perform various actions: for example, to release the train when it is INACTIVE or to stop it completely when it is ACTIVE (before the red signal of the semaphore.) As already shown above, the RB9550 adapter allows you to directly connect the red lamp of the semaphore as an external signal. In the case of more complex systems, for which a program controlling the entire model railroad, an external signal for braking can be transmitted from the program to the module through the accessory state.

When detecting a RailCom decoder (the decoder must have the address forwarding function enabled, see CV28 bit0 and bit1) on one of the isolated connected track sections, the module transmits the corresponding command via the LocoNet bus (depending on the state of the external signal) to the Command station, which transmits the actions further to the decoder via the DCC bus.

Before starting the system configuration, add the module to the map and enter CV editing of the selected RB5350 module element (details are in the table above)

- 1 - Press "BRAKING CONFIGURATION"
- 2 - 3 In the new window, set desired action type for the ACTIVE and INACTIVE states.
- 4 - Set the number of the section located after the semaphore in the direction of the semaphore, or use the "SELECT ON MAP" option.
- 5 - Click on the module feedback element located after the semaphore in the desired direction from the main element (which is marked red)
- 6 - When all configurations are complete, press "APPLY"

Note: Additional option to configure the braking system in conjunction with the PC program.

The image displays four screenshots of the RailBOX mobile application interface, illustrating the configuration process for the RB5350 module.

- CV List:** Shows a list of CVs for the RB5350 Railcom feedback module. The "BRAKING CONFIGURATION" option is highlighted with a green box and labeled with a green "1".
- Braking configuration (Step 2):** Shows the configuration screen for the module. The "Trigger accessory address" is set to 0, and the "Action on INACTIVE trigger" is set to "No action". The "Track section after the signal" is set to 2, highlighted with a green box and labeled with a green "2".
- Braking configuration (Step 3):** Shows the configuration screen for the module. The "Trigger accessory address" is set to 0, and the "Action on INACTIVE trigger" is set to "Normal stop". The "Track section after the signal" is set to 4, highlighted with a green box and labeled with a green "4".
- Accessory:** Shows the "Choose item to send" screen. The "No action" option is highlighted with a green box and labeled with a green "3". The "Track section after the signal" is set to 5, highlighted with a green box and labeled with a green "5".
- Braking configuration (Step 6):** Shows the configuration screen for the module. The "Trigger accessory address" is set to 0, and the "Action on INACTIVE trigger" is set to "Normal stop". The "Track section after the signal" is set to 4, highlighted with a green box and labeled with a green "4". The "WRITE" button is highlighted with a green box and labeled with a green "6".

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Module address programming via changing CV in PoM mode (For command station with no LNCV support)

Important: In this mode, it is also possible to change the address of the additional 5V inputs (1-8).

1. Ensure that the DCC track bus is active and connected (the upper STS LED should be lit **GREEN** or **BLUE**).
2. Enter the module programming mode by pressing and holding the button for 2 seconds. The upper LED should light up **WHITE**.
3. From any device (smartphone/tablet/manipulator) connected to the command station, use **PoM mode** for a **locomotive with address 9999** and modify:
 - CV112 to set the address of the track section inputs (1-16 green connectors), or
 - CV113 to set the address of the 5V inputs (1-8 pin headers)
4. Exit programming mode by pressing and holding the button for 2 seconds. The upper STS LED should again light up **GREEN** or **BLUE**.

CV configuration table

CV	Value	Default value	Description
1	1..20	1	Decoder address (current-input address): Decoder address (short)
7	0..255		Decoder software version
8	0..255	172	Manufacturer code / Decoder reset: Manufacturer code / Writing any value resets the decoder to factory settings
110	0..100	53	Product code 1: Product code 1, read-only. Value X of the product code in RBXXYY format
111	0..100	50	Product code 2: Same as CV110
113	0..255	0	Logical input module address (pin): Address of the module for logical inputs (pin)
114	bit		Inversion of logical inputs (pin)
	0	0	pin 1: 0-off, 1-on
115	0..255	249	Status-request address (low byte): When this accessory address is switched, the module resends all input statuses. Default address is 1017
116	0..7	3	Status-request address (high byte): Same as CV115
119	0..255	100	Brake command repeat interval: Interval between repeated Railcom brake commands in ms. 0 disables periodic repetition; 255 uses the default interval of 100 ms
120	0..255	50	Track section 1 switch-off delay time: Switch-off delay for releasing track section 1, value × 10 ms
121	0..255	50	Track section 2 switch-off delay time: Same as CV120
122	0..255	50	Track section 3 switch-off delay time: Same as CV120
123	0..255	50	Track section 4 switch-off delay time: Same as CV120





CV	Value	Default value	Description
124	0..255	50	Track section 5 switch-off delay time: Same as CV120
125	0..255	50	Track section 6 switch-off delay time: Same as CV120
126	0..255	50	Track section 7 switch-off delay time: Same as CV120
127	0..255	50	Track section 8 switch-off delay time: Same as CV120
128	0..255	50	Track section 9 switch-off delay time: Same as CV120
129	0..255	50	Track section 10 switch-off delay time: Same as CV120
130	0..255	50	Track section 11 switch-off delay time: Same as CV120
131	0..255	50	Track section 12 switch-off delay time: Same as CV120
132	0..255	50	Track section 13 switch-off delay time: Same as CV120
133	0..255	50	Track section 14 switch-off delay time: Same as CV120
134	0..255	50	Track section 15 switch-off delay time: Same as CV120
135	0..255	50	Track section 16 switch-off delay time: Same as CV120
140	1..16	1	Brake Trigger track section number: Selects which track section brake configuration is being edited/read by CV141..CV147
141	0..255	0	Brake Trigger Accessory Address (low byte): Low byte of trigger accessory address for selected channel. Brake actions are evaluated when this accessory address changes state on LocoNet
142	0..3	0	Brake Trigger Accessory Address (high byte): High byte of trigger accessory address for selected channel
143	0..3	0	Brake Action On Trigger INACTIVE: Action to execute for selected track section when trigger accessory state is LOW/inactive. Values: 0=do nothing, 1=normal stop, 2=immediate stop, 3=set speed
144	0..127	0	Brake Parameter On Trigger INACTIVE: Parameter for INACTIVE action. Used as target speed when CV143=3
145	0..3	1	Brake Action On Trigger ACTIVE: Action to execute for selected track section when trigger accessory state is HIGH/active. Values: 0=No action, 1=Normal stop, 2=Immediate stop, 3=Set speed
146	0..127	0	Brake Parameter On Trigger ACTIVE: Parameter for ACTIVE action. Used as target speed when CV145=3
147	0..16	0	Track section after the signal: Railcom channel of the track section after the signal, for the channel selected by CV140. Used to suppress braking for a locomotive returning from that section in the same direction. 0 disables this association.

