PIKO
SMARTCONTROL
wlan

PIKO SmartControl*wlan* –

the future of digital control!



OWNER'S MANUAL

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Dear PIKO fans,

We are pleased to present to you the all-new **PIKO SmartControl*wlan*** Digital Command Control system, an innovative, user-friendly, and above all sustainable DCC system developed completely in-house for the needs of the average DC model railroader.

Running trains, throwing switches, controlling signals, creating routes, and programming CVs has never been so easy. The new **PIKO SmartControl*wlan*** is the perfect DCC system for beginners and seasoned model railroaders alike. And, thanks to the **PIKO SmartControl*wlan*** modular design, adding boosters is a snap for those wanting to expand the size of their layout. The Smart Controller's throttle features easy-to-understand symbols clearly arranged on the color display. This makes operating the SmartControlwlan simpler than traditional DCC systems which required the user to read lengthy manuals or attend a programming course. What's more, the **PIKO SmartController*wlan*** is designed in such a way that it can be conveniently operated with one hand.

The **PIKO SmartControl*wlan*** and **PIKO SmartBox*wlan*** are connected to each other via a self-contained Wi-Fi network. This allows the operator freedom of movement around the layout. A special feature of the SmartControlwlan system is it allows up to four **PIKO SmartController*wlan*** throttles to be paired with one **PIKO SmartBox*wlan*** - for even more fun with family, friends or on a club layout!

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PIKO SmartControl$_{wlan}$

Owner's Manual

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PIKO SmartControl$_{wlan}$ is a Digital Command Control (DCC) system designed for model railroaders of all skill levels. It consists of the **PIKO SmartController**$_{wlan}$ hand held throttle and the **PIKO SmartBox**$_{wlan}$ command center which are connected to each other via WiFi.

The **PIKO SmartControl**$_{wlan}$ lets you control DCC-equipped locomotives and cars as well as accessories like turnouts and signals. It also allows the operator to program train routes so that turnouts and signals are automatically aligned for a particular train routing.

The **PIKO SmartBox**$_{wlan}$ serves as the heart of the PIKO SmartControlwlan system. Clearly labeled buttons and ports make for trouble-free operation while colored LEDs give you a quick overview of the system status.
The **PIKO SmartController**$_{wlan}$ is a state-of-the-art wireless handheld throttle for the **PIKO SmartControl**$_{wlan}$ system. Up to four SmartControllers can be used simultaneously on a single **PIKO SmartBox**$_{wlan}$. The ergonomic shape of the **PIKO SmartController**$_{wlan}$ is designed to sit perfectly in the average hand. The buttons and keypad are arranged such that everything can be controlled with one hand; whether for right-handed or left-handed individuals.

System attributes

- Up to 16 locomotives can be controlled individually or as part of a consist. An almost unlimited number of locomotives can be managed on the SD card*.
- The **PIKO SmartControl**$_{wlan}$ is RailCom Plus® compatible, so all locomotives and rolling stock equipped with RailCom Plus decoders will automatically register with the system when placed on he track.
- The **PIKO SmartBox**$_{wlan}$ supports the 14, 28 and 128 speed step format.
- The data format can be set individually for all locomotive addresses.
- Up to 69 functions can be activated for each locomotive address.
- The system allows up to 128* accessories with addresses ranging from 1 to 2048.
- The **PIKO SmartControl**$_{wlan}$ system features a route memory for up to 18* different train routes. Nine different turnouts and signals can be programmed for each route.
- Each route can have any accessory from address 1 – 2048 programmed into it along with pause times for accessories.
- The command station delivers a 2 A output to the main track and features short circuit and overload protection. This enables multi-train operation of up to 5 trains (depending on the gauge) without having to use additional boosters.
- The **PIKO SmartBox**$_{wlan}$ has a separate programming track output. When programming on the programming track, the main track output is switched off.
- The **PIKO SmartControl**$_{wlan}$ supports both a programming track as well as Programming on the Main (POM and XPOM).
- PIKO SmartDecoders from version XP 5.1 and upwards can be updated with the SmartControl.
- All **PIKO SmartControl**$_{wlan}$ components can be updated.
- The **PIKO SmartControl**$_{wlan}$ can be operated via Wi-Fi in AccessPoint mode (the system's self contained Wi-Fi network), or by integrating the system into an existing home network in Station mode.

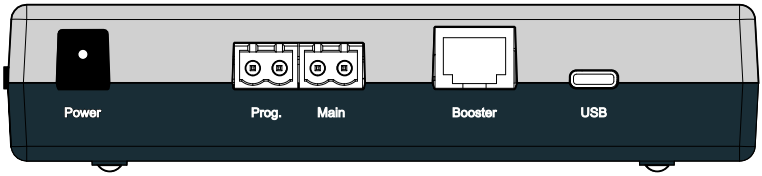
* Start Set versions of the **PIKO SmartControl**$_{wlan}$ allow a maximum of 16 locomotives, 54 accessories, and 3 train routes with 6 switching commands. Programming can only take place on the programming track. Start Set SmartControl systems can be upgraded to the full SmartControl system..

System connections

The **PIKO SmartBox**$_{wlan}$ has ports for a main track, a programming track, a PIKO SmartBooster, the PIKO SmartTester, as well as USB-C port and a socket for the power cord.

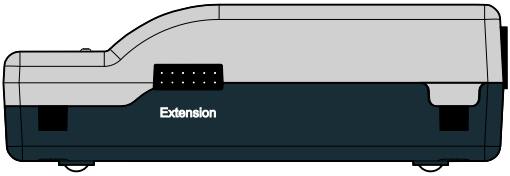
Connection points on the PIKO SmartBox $_{wlan}$

Back side



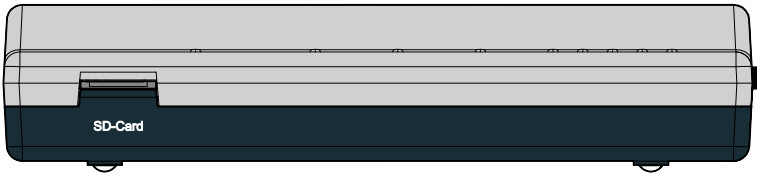
Power: Connection port for the 16V DC power cord
Prog.: Port for the programming track (only for decoder programming; No digital traction voltage)
Main: Port for the Main track connection with DCC digital voltage
Booster: Connection port for a PIKO Booster
USB: USB-C port for PSCw app and firmware updates (cable included)

Right side



Extension: Connection port for SmartController accessories like the PIKO SmartTester

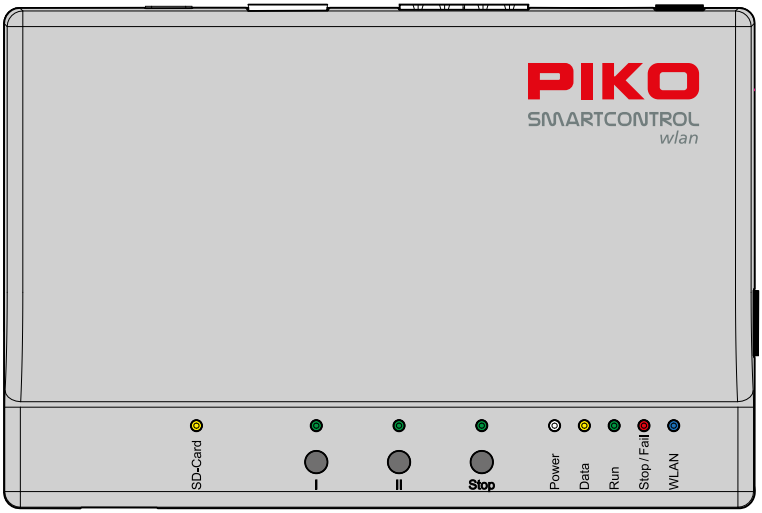
Front side



SD-Card: SD card: Slot for the micro SD card

The included micro SD card is used to store locomotive images and to transmit updates to the command station. In addition, the information stored in the system about locomotives, accessories and routes can be saved on the micro SD card and later transferred back to the SmartController (backup function). **The SD card must be inserted to operate the SmartBox.**

Controls and display elements of the PIKO SmartBox *wlan*



Buttons

I:	Open use button (you can program this button for any function you want)
II:	WLAN "Fast Connect" (adjustable)
Stop:	Track power On/Off switch A long press on start-up resets the SmartBox to factory settings

LEDs

SD-Card:	SD card data transfer
I:	Button I on/off
II:	Button II on/off
Stop:	Stop button on/off
Power:	System is powered on
Data:	SmartController is receiving data
Run:	Main track is switched on
Stop/Fail:	Main track is switched off / system fault
WLAN:	Wi-Fi On/Off

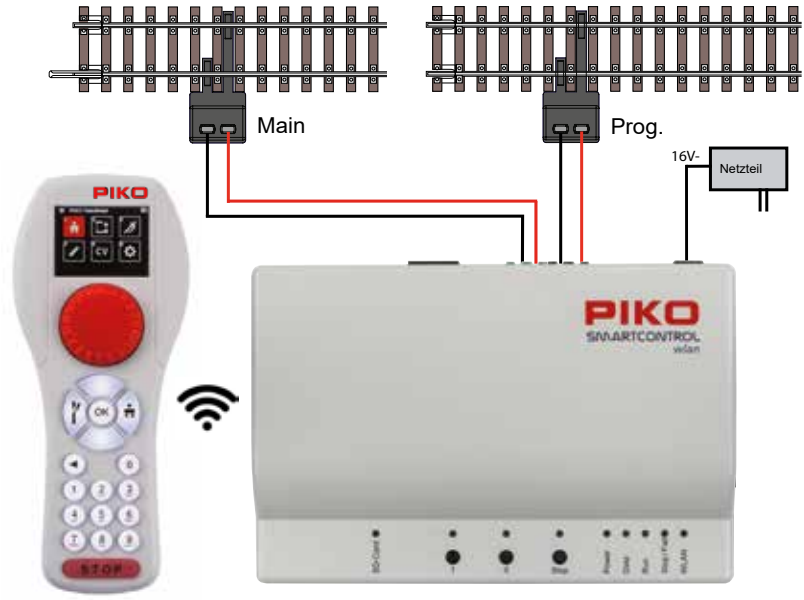
1. Putting the PIKO SmartControl$_{wlan}$ into operation

First connect the main track port (Main) of the **PIKO SmartBox$_{wlan}$** to the main track and, if necessary, the programming track port (Prog.) to the programming track. The main and programming tracks should not be connected to each other in any way or it will damage (and possibly destroy) your **PIKO SmartBox$_{wlan}$** .

Make sure the SD card is inserted into the SD card slot.

Now turn on the operating voltage by plugging the 16V power supply cord into the Power connection port. The following control LEDs will now illuminate: SD card (yellow, briefly), Power (white), Stop/Fail (red) and WLAN (blue; blinking)

Now insert the included battery into the battery compartment on the back of the **PIKO SmartController$_{wlan}$** . Make sure the battery is oriented correctly to its contacts. Reattach the battery compartment cover with the enclosed screw. Now the **PIKO SmartController$_{wlan}$** will turn on automatically. If the battery is already inserted and the throttle is turned off, press and hold the "STOP" button for approx. 3 seconds to turn the throttle on again. After the PIKO start screen, the locomotive selection menu will appear on the display and the "STOP" button will flash (track voltage is turned off).



CAUTION:

The SmartController throttle and SmartBox are not paired to each other from the factory. There is no Wi-Fi connection and the Wi-Fi symbol on the throttle's display is crossed out!

You must first activate the Wi-Fi connection, which will then pair the throttle and command center to each other. If both devices have not been used before, please carry out the "FastConnect" function by following the instructions on the SmartController's screen and pressing and holding button II on the control panel until the "Run" and "Stop/Fail" LEDs flash in-synch. Then confirm seeing the two information windows on the throttle by highlighting "Yes" within 30 seconds.





The devices are now paired when the two LEDs on the control panel stop flashing and the active WLAN symbol appears on the throttle.

More information on "FastConnect" can be found in Chap. 3.8.5 "Select WLAN".

2. The controls of the PIKO SmartController$_{wlan}$

Overview of the controls



Display

The **PIKO SmartController**$_{wlan}$ vfeatures an illuminated TFT color display that can be adjusted to the user's preference. The display icons are largely self-explanatory. Each icon is clearly marked for easy use of the **PIKO SmartControl**$_{wlan}$ digital system.

The Wi-Fi signal strength, throttle ID and battery level are displayed in every menu on the top line of the display. Depending on what it is being used for, an hourglass icon will appear (data is being loaded or processed), the letters "ABC" or "abc" will appear to differentiate between upper and lower case, the letter "R" will appear to signify RailCom Plus® registration and the letter "P" will appear during CV programming mode via the programming track.

Throttle

The throttle features endless rotary dial control for setting the speed, changing direction of travel and emergency stop for the currently active locomotive.
Adjustable for AC drive controller mode (factory setting) and DC drive controller mode (chap. 3.8.3).

Buttons

All train control and layout operation can be carried out comfortably using the backlit keyboard of the PIKO SmartControllerwlan. The durable keys have a clearly perceptible pressure point and are nearly wear-free.

USB-C port

The **PIKO SmartControl*wlan*** contains a USB cable that is used to charge the system via the USB-C port. Charging can also be carried out while the system is in operation. If need be, a 5V DC, 1A power supply to charge the system, provided it has the correct USB plug.

3. Operation of the PIKO SmartController*wlan*

3.1. Start

When the SmartController is turned on, it is in the locomotive selection menu and the STOP button flashes (track power is switched off).
Power to the main track output can now be turned on with the STOP button. The STOP button light will switch off and the “Run” LED on the SmartBox will light up green.
Track power can be shut off at any time using the STOP button on the throttle or the “Stop” button on the SmartBox.
In the locomotive selection menu, you will find all locomotive data that has been created via the editing menu or that has been automatically generated from RailCom Plus®-equipped locomotives. DCC locomotives are factory-set to address “3” and will show up on your system as “3” until you give the locomotive a new address.

If your **PIKO SmartControl*wlan*** came as part of a **PIKO SmartControl*wlan*** Start-Sets then “Startset” will appear on the throttle display. The Startset version allows you to immediately begin operating trains once track power is turned on and the Start Set locomotives are placed on the track. Each Start Set locomotive is equipped with a RailCom Plus® PIKO SmartDecoder, so they identify automatically with the **PIKO SmartControl*wlan*** the minute they are placed on the track. It’s true plug-and-play operation!

NOTE: During operation, the throttle may display information windows. These windows can be closed with any key, or they will disappear automatically after about 10 seconds. The information displayed should be noted respective to its content.

3.2. The Main menu

The menus for controlling rolling stock and accessories as well as device settings are available under the main menu.

The menus displayed can either be selected with the keypad using their associated number (top left in the menu field) or selected using the navigation buttons (up / down / left / right) and then confirmed with the "OK" button



1 [ ]: Locomotive menu (for selecting available locomotives)
2 [ ]: Accessories menu (for selecting available accessories)
3 [ ]: Routes menu (for selecting train routes you have created)
4 [ ]: Edit menu (for editing locomotives, accessories, and train routes)
5 [CV]: CV programming menu (CV programming and decoder updates)
6 [ ]: Settings menu (for selecting device settings)

You can return to the main menu from each of these menus by pressing the "back" button.

3.3. The Locomotive menu [ ]

In the locomotive menu, you can choose from all available locomotives which one you want to operate. Up to 16 locomotives can be run simultaneously. If a locomotive is selected and is currently running on the layout, you can still switch to another one. The previous locomotive will continue to run at the speed you left it at until you select it again and change its speed.

The locomotive menu is factory set to locomotive address 3.



To begin operating a locomotive with the **PIKO SmartController**$_{wlan}$, you first call it up from the locomotive selection list by pressing the number key that matches the locomotive's address (found in the top left of the field). The locomotive can also be selected by using the navigation buttons (up / down / left / right) and pressing the "OK" button.

If numerous locomotive data sets have been created and they do not all show up on the display, you can scroll down through the list and select the locomotive you want to run.



If more than six locomotives are available, two triangles will appear above and below the list. The solid triangle shows the direction in which further locomotives can be reached using the "up" or "down" buttons. If the desired locomotive is not in the list, it must first be created in the locomotive data editing menu (chap. 3.6.1). If the selected locomotive has not yet been called up by the throttle you are using and "Last command applies" is not activated in the throttle's settings menu, a query window will appear asking whether the locomotive should be selected. If this question is answered with "Yes", then the locomotive will be requested from another throttle that may be present. If the locomotive is not being operated from another throttle, it is taken over directly by your throttle. If the locomotive was last called up by the previous throttle, it will display a green dot in its data field and is therefore immediately available.



After the desired locomotive has been called up, it can be run directly using the throttle's dial. The dial will automatically turn to the speed the locomotive was traveling at when overtaken from the previous throttle.

The display will now show the locomotive image stored in the locomotive editor, the current speed step, and the direction arrow including the speed bar underneath it on the lower left.
If the direction arrow points right, this indicates the locomotive is moving forward. If the arrow points left, this indicates the locomotive is moving in reverse. If the dial is turned to the right, the locomotive will move at increasing speed in the indicated direction of travel . Pressing the dial reverses the direction of travel when the speed is set to zero. If the dial is pressed once while the locomotive is running, the locomotive will stop at its programmed deceleration rate. The direction of travel is only reversed by pressing the dial again (Like with AC throttles). If the dial is pressed twice quickly while a locomotive is running, the locomotive stops instantly without any braking delay. Whichever DCC speed step setting the locomotive is programmed for, 14, 28, or 128, will be displayed under the speed bar. Below the speed bar the locomotive address and name are displayed. The current status of all available locomotive functions is found in the right half of the display. If a function is switched on, the corresponding function icon displays a colored background (see F0 here).





Locomotive functions are activated using the SmartController's keypad. The light function (F0) is always activated using the "0" key. For all other functions, the field in the display screen shows which keypad button to press to activate a function.



The two triangles to the left of the function field indicate whether additional functions are available. If a triangle is solid white, you can scroll line by line in the corresponding direction of the triangle by using the Up or Down keys.A locomotive may have even more functions available, but they have been turned off during locomotive data entry



Fun fact:
If the "up" button is pressed for approx. two seconds, the display changes to a DEUTA "tachometer display" of the speed step levels. The F0 function can also be switched here. Pressing the "back button" or the "down button" for approx. two seconds switches back to the standard display.

DC throttle mode

When the dial is turned to the right, starting at speed step zero, the locomotive will move forward with increasing speed. When the dial is turned back to the left, the speed of the locomotive is reduced until it stops. Another left turn will cause the locomotive to move in the opposite direction of travel.
DC throttle mode is activated in the settings menu of the **PIKO SmartController*wlan*** (chap. 3.8.3).

3.4. The Accessory menu [ ]



The SmartControl system will accommodate up to 128 DCC accessories with addresses between 1 - 2048 (up to 54 addresses in the StartSet version). Symbols (icons) are available for accessories such as street lamps up to four-aspect illuminated signals, which must be switched via three different DCC addresses. The accessory menu automatically recognizes RailCom® accessory decoders. The SmartController is not pre-programmed for any specific accessory, so they must be entered into the system via the “Edit accessory” menu. (see Chapter 3.6.2)



Once an accessory is entered into the SmartControl system, it can be selected on the SmartController by using the keypad (matched to the accessory’s icon on the display) or by highlighting the accessory’s icon using the navigation keys and pressing “OK".
Note: While in Accessory mode, the locomotive that was last being operated from your throttle will continue to be operated by your throttle. The name of the locomotive, it’s speed and direction of travel will continue to be displayed in the lower left corner of the display. Just because you changed the throttle to Accessory mode does not mean that you loose control of the train you were operating.



If an accessory is called up, its settings (on/off, red/green, etc.) are displayed on the screen and can be switched directly via the keypad or the navigation buttons and subsequently confirmed by pressing "OK".





Multi-aspect signals, three-way turnouts and slip switches (turnouts/crossovers) with multiple drives can be switched at the same time using just one command. The accessory menu will then display them according to their current position.

Switching accessory addresses directly (without programming them)

The accessories menu allows you to switch an accessory that has not yet been programmed into the SmartControl system. This is convenient for testing some accessory decoders or for testing out a train routing. To do this, enter the accessory menu and press the "up button" for approx. 2 seconds. Enter the desired switching address in the "Address" field and confirm by pressing "OK". You can now switch the accessory directly using buttons 1 (red) or 2 (green). The fields "R" and "G" can also be selected via the navigation buttons and then confirmed by pressing the "OK" button. This will switch the accessory. During switching, the relevant field (R or G) displays a colored background, and no other switching command can be triggered at this time.







3.5. The Route menu [ ]

The route menu is used to send a sequence of commands to digitial accessories like turnouts with the push of a button. It makes operating a complicated track plan much easier, where, for example, a train may need to leave a large station and three-way turnouts and multiple-aspect light signals need to be switched at the same time. In this situation, at least four switching commands would have to be sent at once.



The route menu is accessed up by pressing number 3 in the main menu or by the navigation buttons followed by pressing the “OK” button.
A maximum of 18 routes with 9 accessory commands each (3 to 6 with StartSet versions) can be stored in this menu.
Routes consist of a sequence of accessory commands, pause commands, and/or calling up other routes (sub-routes). They can be provided with two-line designations and thus there are hardly any limits to creativity for the routes to be created.



No routes have been pre-programmed at the factory. They have to be created in the “edit routes” menu (chap. 3.6.3).
If several routes are created, they can be selected from their position in the list by pressing their matching number on the keypad or by using the navigation keys to highlight a particular route and then pressing the “OK” button.
When a route has been activated, the display field for the route will flash until all the commands for that route have been sent.

Note: While in Route mode, the locomotive that was last being operated from your throttle will continue to be operated by your throttle. The name of the locomotive, it’s speed and direction of travel will continue to be displayed in the lower left corner of the display. As noted before, just because you are in a different menu does not mean you lose control of the train you are operating.

3.6. The Editor menu [ ]



The SmartControl's Editor menu allows you to edit data for locomotives, accessories, and routes. To begin editing, you must first select the editor menu icon. After selecting the editor menu, a locomotive icon, an accessories icon, and a route icon will appear on the display.



Select the application you wish to edit from these three icons. Since the icons in these application menus and the editor menu are the same in places, their field color changes from red to blue to avoid any confusion. In the editor menu, the application menu whose data is to be edited can be selected using the keypad or the navigation keys and confirmed by pressing the OK button.

Here you can select the "Locomotive menu", the "Accessories menu" and the "Route menu".

3.6.1 Edit locomotive data



After calling up the locomotive menu, a maximum of sixteen locomotives currently available in the system are displayed along with empty fields, if less than sixteen locomotives are available. You now select an existing locomotive data set for editing, or a newly entered locomotive that you have just placed in service. The desired locomotive is selected using the keypad or the navigation keys and confirmed by pressing the OK button.



If you want to edit a locomotive data set that has previously been edited yet the particular locomotive has not been run by your throttle during the current operating session (no green dot), the screen will display a message asking whether this locomotive should be requested from the command center. If necessary, this must be answered with "Yes". If this locomotive data set does not need to be edited, use the navigation key to change your answer to "No" and confirm with the OK button.



If you wish to create a new locomotive data set, you should select an empty locomotive data field using the keypad or navigation keys followed by the OK buttont.

The following example shows how to create a new locomotive data set for the BR 83.10. This locomotive, which is not RailCom Plus® compatible, will be entered into the system under DCC address “4” with 28 speed steps, a name of “BR 83.10” and several function keys.



Since this is a new locomotive data set, we choose an empty locomotive data field, whose DCC address appears as “0”.

Editable data fields are always highlighted in blue. In the first step, the locomotive image is highlighted with the blue editing frame. If you wish to change the image, press the OK button. If not, scroll down to the next highlighted frame



To select the image for the BR 83.10, we scroll to the “PIKO” option and select it, as all PIKO locomotive images are available under the PIKO option. If a message appears about a non-existent image (while the SD card is inserted), please use the bottom menu option "Update" to display the entire image database.

RailCom® locomotive images and your own customer-specific images can be saved to the image database. Your own pictures must first be saved to the SD card using the PSCw app in order to automatically get the correct display size.



All PIKO locomotive images are now available for selection.

You can scroll through the list page by page using the “up/down” navigation keys.

If the "BR 83 10" page appears, use the “right” navigation key to select one of the four locomotives offered.



Now highlight "8310" with the "down" button and then confirm with the OK button.



The locomotive image is saved when the “save” symbol is selected and confirmed with the OK button.

The display then jumps back to a list of other locomotive data.

The new locomotive image for the BR 83.10 retains a blue editing frame and can be changed again if desired.



To set the number of DCC speed steps, move to the speed step display under the speed bar using the "down button". This is now highlighted in blue.

Press the OK button to open the selection field for DCC speed steps.

Now use the "down" button to select the desired number of speed steps and confirm with the OK button.

If you plan to use the SmartController throttle with just one hand, then the 28 speed step setting is usually most comfortable.

NOTE: If you select the 14 step setting, which was common in the past, then your locomotive's headlight will not function properly using a current decoder. The 14 step setting will cause the headlight to be switched on and off from speed step to speed step. If this happens, adjust CV 29, Bit 1 to 0.



To enter the locomotive's DCC address after setting the speed steps, scroll down to the next field, which will now be highlighted in blue.

By pressing the OK button, the previous address becomes a sequence of gray zeros, which can now be overwritten with the desired locomotive address.

As with previous data entry, the address is saved by pressing the OK button.



At this point, the locomotive name can be changed. To do so, use the "down" button to navigate down another line to highlight the previous name in blue.

By pressing the OK button, the old name is displayed in gray.

It can now be deleted character-by-character using the "left" navigation button. Then the desired locomotive name is entered using the keypad in the same way a telephone keypad is used to enter text.



If you want to switch between upper and lower case letters (the active spelling appears in the top line of the display "abc / ABC"), you can do so by using the "down" key.
Special characters are be found under the 0 and 1 keys. A space is inserted with the "right" navigation key.
0: 0 . : ; % & [ ] { } ~ ` | #
1: 1 , ! ?-_+ / ( ) @$ ' " *=<> \ ^

Finally, the entry is confirmed by pressing the OK button.



The function keys can also be changed in each locomotive data set. Function keys can be re-mapped, symbols/icons changed, and new function keys up to F68 can be created.

To change the functions of the current locomotive, press the "right" navigation button. Now all functions are displayed in blue



By pressing the OK button, the two navigation arrows next to the function key field turn blue and the functions to be changed can now be selected via the keypad.

If functions other than those shown are to be changed, you can use the "up" or "down" keys to scroll line by line to the desired area. The solid navigation arrow indicates the direction in which you can scroll.



Swapping two function keys is achieved by first highlighting one of the two function keys using the keypad (field turns blue). The second function to be exchanged is then selected with the keypad.

In the example shown, it would be the function keys F2 and F3, if the key F3 were now pressed.



To change the symbol/icon of a function key, first highlight it using the keypad and then press the OK button.

A total selection of 46 function symbols will now appear which you can scroll through using the “right” and “left” navigation keys.



Once you reach the desired symbol, you can choose whether the function will be a one-touch momentary function or a function that stays in operation as long as the symbol is highlighted. To assign a momentary key function (m), use the "up" or "down" navigation keys. A momentary function means that the function is only switched on for as long as the function key is pressed.

These settings are then saved by pressing the OK button.



In the example shown, F3 horn function key has been changed to an "Up / Down" symbol.

Once all the entries have been made for this locomotive, press the "Back " button on your throttle ...



... to save the new locomotive data set with the "Save" icon.

At this point you can also delete this locomotive data record by using the "Recycle bin" icon.

The display then reverts to the locomotive editor icon of the editor menu.

By pressing the "back button" a second time, the display will return to the main menu, where the locomotive can then be selected and tested via the locomotive menu (chap.. 3.3 "The Locomotive menu").

3.6.2 Edit accessories



To add a digital accessory to the SmartControl system, you first select the accessories symbol in the editor menu by using key 2 or by using the navigation keys followed by the OK button.



The illustration to the left shows previously entered accessories and an empty field.

(No accessories have been programmed into the SmartController at the factory.)



In this example, we will add a left-hand turnout to the empty field and designate it W4.

The empty field for this new accessory is now highlighted by using the 5 key or the navigation keys and confirmed with the OK button.



The following illustration shows symbols available for various accessories. The left-hand turnout icon can now be selected using key 2 or the navigation keys.

Here, too, the blue navigation arrows show that more symbol options are available which can be reached using the "up" or, as in this case, "down" button.



Various steps can now be selected in this view. The first step is to enter the name and a brief description of the item.

To do this, select the "Name" field and confirm it with the OK button



The name will appear later in the accessories menu as an identifier for selecting the accessory and the description will appear when the desired item has been called up. After the "Name" field has been selected with the OK button, the name field is highlighted in blue and marked for entry with the OK button.



The name is entered using the “telephone keypad” and is a maximum of 4 characters long. To switch between upper and lower case letters, press the "down" key. The active case notation can be found in the top line of the display as "ABC" or "abc". The name entry is then completed with the OK button.

The input field for the accessory description will now be framed in blue by pressing the "down" button and marked for input with the OK button.



A short two-line description can be entered in the text field.

The description is confirmed by pressing the OK button.

Use the "back" button to go on to other entries

.



You can now use the "down" button to scroll to the "Type" entry and then select it with the OK button. Various switching options are available here, which can be activated depending on the type of decoder used.



The "Simple" entry is certainly the most common type and also the factory default setting. The desired decoder type is selected with the "up" or "down" button and confirmed with the OK button. The corresponding field is then highlighted in green.

The top, still grey entry "RailCom Decoder" can be used in the future for RailCom®-equipped accessory decoders.

The entries "Extended" and "Extended time" can be used for accessory decoders, which can be named according to the RCN standard 213. More information can be found in the instructions for the particular accessory decoder.



Use the "back" button and then press the "down" button to scroll to the "Address" entry and select it with the OK button.



To ensure that the correct accessory decoder is addressed when activated later, the desired switching address must be entered in this submenu. The address field is highlighted using the "right" navigation key and activated with the OK button. Now the desired address (here "4") can be entered and confirmed with the OK button.



Now, use the "down" button to select the lower field for entering a desired "activation time" and highlight the entry with the OK button.

The activation time is entered in 100ms increments and determines the length of time the accessory is activated after receiving a command from the control panel. (pulse duration).

Confirm the activation time with the OK button and then press the "left" navigation button.



The two arrows next to the turnout symbol now appear in blue.

You can now use the "up" or "down" button to scroll to both directions for the two turnout positions.

The turnout position (here it is straight) to be set here "green / straight" or "red / diverging" is shown in green in the turnout symbol.

The selection is now activated with the “right” navigation key. This can be seen from the switching address now shown in blue.



The switching direction (here green) can now be selected via the OK button. The respective setting is shown in color in the corresponding field.



Once the first direction has been set, you must now use the "left" button to jump to the turnout symbol. The two arrows are now shown in blue again and the "down" button highlights the second turnout position, which is also shown in color in the turnout symbol (here it is the diverging track). Now press the "right" button again to enter the turnout position and set it with the OK button.

Use the “back” button to complete the address setting process.

IMPORTANT: At this point, the entries have not yet been saved. If you go up a menu level without saving using the "back" button, a message will appear asking if you want to abort your editing. If you answer yes, the data set will not be saved.



To save your settings, use the navigation buttons "up" or "down" to go to the "Save" option and confirm it with the OK button.

If an accessory that has already been saved is called up in the editing menu, it can be deleted via the "Delete" option after answering a security query.

The display then jumps back to the selection of editable accessories.

The entries for multi-aspect accessories such as three-way or double slip turnouts with two drives, or three- or four-aspect light signals which require more than one switching address are shown here in short form using the example of a three-aspect light signal.



Select three-aspect light signal.



Enter name and description.



There is no need to enter the type, since the factory setting "Simple" is used automatically here.



Enter the first address for the red/green toggle, followed by the second address to toggle yellow on/off. Then enter the activation time in 100ms steps.

In the following steps, enter the switching directions red/green for the signal aspects shown and then save the data set.





NOTE: For technical reasons, the final display order depends on the available open field locations. This means that when accessories have been deleted, the next newly created data set is automatically saved in the field location that was just deleted.



The display of the new article does not necessarily reach the position that was displayed when the empty field was selected.

3.6.3 Edit Route



To create train routes, the route symbol is highlighted in the editor menu by using key 3 on the keypad or using the navigation keys followed by the OK button.

A sequence of circuits of the edited accessories , pause times, previously edited routes, and so-called sub-routes can be added to a route. The limit for the maximum number of additions to a route is 9*. This limit can be significantly expanded if necessary thanks to the sub-routes just mentioned. A total of 18* routes are possible.

* Number in the starter set is lower.



The following view shows previously entered routes and one empty field.

When new, the SmartController has no routes stored in it; it just displays an empty field.

This field is selected using the OK button or the "2" key.

If routes have already been added, you can access an empty field (to add a route) by pressing its associated number or using the navigator buttons.



Like the editor menu for accessories, a selection menu will appear showing each possible process.

For example, we will make a "station arrival" route. This route switches turn-out W4 to straight, the three-aspect entry signal LS12 to green (Hp1) and after a pause of 50 seconds back to red (Hp0).

The first step is to enter the name of the new route.

To do this, select the "Name" field and confirm with the OK button.



After confirming the Name field by pressing OK, the new name can now be entered using the telephone keypad method. The name is then confirmed with a press of the OK button.

The "back" button takes us back to the selection menu for the possible processing steps.

The "Entries" field is then highlighted and activated with the OK button.



The display changes to the nine input fields for possible route commands.

The first field is now highlighted for entering the first switching command and confirmed with the OK button.



In the following view we can now decide which type of route command should be entered as the first step. There are “accessory circuits”, “pauses” and previously edited “routes” (sub-routes) to choose from.

The selection can be made using the navigation keys or using the number shown in each field.

Since the first step is a switch command for turnout W4, the field for accessories is highlighted.



After the accessory symbol has been confirmed, the accessories already entered into the system are displayed as options.

Left-hand turnout W4 is selected using key 3 or using the navigation keys followed by the OK button.



Now we can decide what direction the turnout should be aligned to. The turnout needs be set to "straight". To do this, we either use key 1 or the navigation keys to highlight the relevant field and confirm with the OK button.



To keep the turnout motors from overheating, we set a delay time in 100ms increments in the input window that now appears and confirm it with the OK button.



Finally, we highlight the OK symbol and complete this step by pressing the OK button.



The first step of our route now appears in the command sequence.

In the second step, light signal LS12 needs to be added. To do this, we select the second field with key 2 on the keypad ...



... and in the next window we activate symbol 1, which is the symbol for accessories.



Accessories already stored in the system are displayed again.

Light signal LS12 is selected according to its position using key 6 or by using the navigation keys followed by the OK button.



Now we decide which signal aspect should be activated. The signal should display "green" (Hp1). To do this, we either use key 2 or the navigation keys to highlight the relevant field and confirm with the OK button.



Then we enter a delay time in 100ms increments and confirm it with the OK button and complete the entire step via the OK button in the "OK" field.



The second step in our sequence requires a five second pause to be inserted. To do this, we select the third field with key 3 ...



... and in the next window we activate symbol 2 for the pause.



In the subsequent window, you can jump to the delay field and select it with the OK button.

Now we insert a pause time of 50 seconds in 1s increments and confirm it with the OK button.

Then we highlight the "OK" field and complete the entry by pressing the OK button.



The third step of our sequence will now appear where at the end of the route, entry signal LS12 is set to red (Hp0) again.

To do this, we first select the fourth, still empty field with key 4 or with the navigation keys followed by confirmation with the OK button ...



... and in the next window we activate symbol 1 again, for an accessory.



In the selection, we select light signal LS12 using key 6 on the keypad or by using the navigation keys followed by the OK button.



Now we can decide which signal aspect to switch. The signal should be set to "red" (Hp0). To do this, we either use key 1 or the navigation keys to highlight the relevant field and confirm it with the OK button.



We now enter a delay time in 100ms increments and confirm it with the OK button and complete the entire step by highlighting the "OK" field.



The window that now appears displays all the accessory commands of our completed route.



The last step is to press the "back button" to save the new route in the following window via the "save" symbol.

This window also allows us to delete a route (that has been called up in the editing menu) by using the "Recycle bin" icon.



The display will now change to the editor menu for routes. Our new route is displayed and, if desired, we can create another route using the empty field.

Pressing the "Back" button two more times takes us back to the main menu, in which the newly created route can now be selected and tested via the route menu.

3.7. The CV programming menu [CV]



In the main menu, the "CV" icon is selected using key 5 on the keypad.

A CV (Configuration Variable) is a memory address in a digital decoder. The content (value) of these CVs determines the behavior of the decoder. The meanings of the respective CVs are found in the instruction manual of the decoder.



The **PIKO SmartControl**$_{wlan}$ offers three types of programming for decoder CVs:

1. Programming on the Main (POM)
2. Programming on the Main for Experts (XPOM) is a new type of programming for experienced programmers
3. A Programming track (PROG) is the traditional programming method where the locomotive is placed on an isolated track dedicated just to decoder programming.

The fourth menu (PSD) is intended for updating **P**IKO **S**mart**D**ecoder from version XP 5.1 and upwards.

3.7.1 CV programming on the programming track (PROG)

Since programming on a programming track is the most common, it will be explained first.

First place a locomotive with a CV-programmable decoder on the programming track.



In the programming menu, call up the "PROG" menu using button 3 on the keypad or by using navigation buttons and confirm your choice by pressing OK.



The panel's green Run LED will flash and a red "P" will appear in the top line of the next display window.

Use the navigation keys to jump to the "CV" field and enter the CV number to be read or written. To do this, first press the OK button. The input field will now become solid. Now enter the CV number using the keypad and confirm it by pressing the OK button again.

CVs up to 1024 can be edited.



If you want to read the CV, use the "left" navigation button to select the "read out" symbol and confirm it with the OK button.

NOTE: If a message is displayed saying "Prog. Tr. is occupied, please wait.", the programming track is currently being used by another controller and cannot be accessed by this controller.



The read value is now displayed in decimal form in the "Value" field, and as bits highlighted in red in the bit field underneath. The "read out" field is now solid red. The meaning of the CV's individual bits can be found in the instruction manual for the decoder.

If the CV read out failed, the "Value" field will display a 0 and the "Read" field will remain outlined in red.



If this CV is to be programmed with a different value, then select the "Value" field on the right-hand side and confirm with the OK button. Now enter the desired value, confirm with the OK button and select the "write" symbol on the left-hand side. Complete this step by pressing the OK button.

The value to be written can be entered in decimal form in the "Value" field and in bit representation as bits highlighted in red. For bit-by-bit programming, use the "down" button to jump into the bit sequence, use the "left" and "right" navigation buttons to select the desired bits and confirm each with the OK butto.



If the CV was written successfully, the "Write" field will now turn solid red.

3.7.2 CV Programming on the Main track (POM)

A prerequisite for main track programming is that the decoder address of the locomotive to be programmed is known. In addition to be programmable on the main track, CVs can also be read from the main track provided the decoder is capable of it.

NOTE: The currently active locomotive can still be operated while it is being programmed on the main track.



Call up the "POM" menu in the programming menu by pressing key 1 or using the navigation keys followed by the OK button.





Now go to the "Address" field, press the OK button and enter the decoder address to be edited, using the keypad. Confirm with the OK button.

If the displayed CV is to be read, then use the "left" navigation button to select the "read out" symbol and confirm with the OK button. CVs from 1 to 1024 can be entered into the CV field.





The read value is now displayed in decimal form in the "Value" field and as bits highlighted in red in the bit representation (below).

If the CV value is to be changed, use the navigation buttons to navigate to the "Value" field and activate it with the OK button. Enter the new value using the keypad and confirm it with the OK button. You can also change the CV bits in this window (Chap. 3.7.1 " ... programming track (PROG)").





Now use the "left" navigation button to select the "write" symbol on the left-hand side, and finish by pressing the OK button.

Other CVs can be programmed in the same way.

To leave main track programming, press the "back" button. The display will again show the programming menu.

During Programming on the Main track, the input and action fields behave in the same way as they do when programming on the Programming track. If a CV has been successfully read or programmed, the corresponding action field will also be solid red.

3.7.3 CV Programming on the Main track (XPOM) *for Experts*

The **PIKO SmartControl**$_{wlan}$ offers a relatively new type of programming method known as Programming on the Main for Experts (XPOM). This is used to speed up access to CVs and to address the area of the CV banks that can only be accessed via CVs 31 and 32. Up to four CVs can be written with one command. If the decoder is RailCom®-enabled, the system can read four CVs at the same time. This processing is done in decimal or hexadecimal notation·

PLEASE NOTE: CV numbering starts with "0". CV1 is really CV0. CV29 is actually CV28, etc.!
The CV number to be entered is always 1 number less than the value you want to give the CV!





To start the XPOM process, first place a locomotive with a known decoder address on the main track.
In the programming menu, call up the XPOM menu using key 2 or by navigating with the navigation buttons and pressing OK.

Now go to the "Address" field, press the OK button and enter the address of the decoder to be edited using the keypad. Confirm with the OK button.

The line CV basically consists of the values of the “pointer” CVs 31 and 32 (fields 1 and 2) and the actual CV to be edited (field 3). This CV is always between 0 (CV1) and 255 (CV256). If, for example, the decoder instruction manual says "CV31 = 16, CV32 = 0 and CV257 = volume level value" for setting the overall volume, then CV257 is the first CV in this CV bank and is also entered here with CV number 0.

For this example, the values of the three input fields would then be "16, 0, 0"..





If the CVs are to be read from the "CV" line, then use the "left" navigation button to select the "read out" symbol and confirm with the OK button.

The read values of the four CVs are now displayed from left to right in decimal or hexadecimal notation in the "Value" fields in ascending order. Here are the values of CVs 1 - 4.





If the values are to be changed, then use the navigation keys to select the desired field and confirm with the OK button. Now enter a new value using the keypad and confirm again with the OK button. Finally, use the “left” navigation button to select the “Write” icon, and confirm by pressing the OK button.





If the display in hexadecimal form is desired, then select the "Hex" field with the navigation keys and activate with the "OK" button. The values greater than 9 (A - F) can be set using the telephone keypad or the "up" and "down" navigation keys and confirmed with the OK button.
To exit the XPOM programming menu, press the "back" button. The display will again show the programming menu.

3.7.4 Update menu for PIKO SmartDecoder XP 5.1 and further versions (PSD)

This menu can be used to update PIKO SmartDecoders beginning with version XP 5.1. The latest firmware can be found in the web shop on the PIKO website and can be copied to the SD card.





To update a decoder it has to be in a locomotive on the main or programming track, or inserted into a PIKO SmartTester that is plugged into the "Extension" port on the side of the **PIKO SmartBox**$_{wlan}$.

After selecting the "PSD" field, the input field for the decoder address and the option for selecting the "track" where the update will occur appear in the next window.





The decoder address can be changed in the "Address" field if necessary. To do this, press the OK button when the address field is highlighted, enter the address, and then confirm with the OK button.

If the locomotive is not on the specified track, the track selection can be changed using the "Track" field. There are two options here which can be selected by using the "up" or "down" button. "PROG" for the programming track output and "MAIN / EXT" for the main track output or the SmartTester connected to the extension port. Locomotives with other decoders can start moving unintentionally due to their automatic analogue detection. When your selection is confirmed with the OK button, the system will search for the decoder and identify it's type. If it is identified, the firmware version suitable for this decoder type will be displayed on the SD card and only then can the update commence. Once the decoder has receives the signal, it activates outputs A0f and A0r.





The update for this PSD decoder starts via the "Update" field by pressing the OK button. Please do not interrupt the update process!

After a successful update, the progress bar will appear solid green and the SmartBox will emit three short beeps. The PSD menu can now be exited using the "back" button.
The CV menu is now displayed again.

3.8. The Settings menu [⚙]



To assign settings in the **PIKO SmartControl**$_{wlan}$ devices, the " ⚙ " icon for the settings menu must called up in the main menu by using key 6 or by the navigation keys followed by pressing the OK button.



The Settings menu gives you options for setting system attributes like language (1), screen brightness (2), and general settings (6) all the way through special settings for the SmartBox (8).

3.8.1 Setting the Language

Currently, nine languages are available, and their respective alphabets are used in their character sets.





To change a language, select the Language icon using key 1 or by navigation and then pressing the OK button.

You can use the "up" or "down" navigation buttons to scroll to the desired language and then select it with the OK button.

To exit the language menu, press the "back" button. The display now returns to the settings menu.

3.8.2 Setting the Controller's display brightness



The Controller's display brightness as well as the keyboard backlight brightness can be set separate from each other.

To do this, press key 2 on the numeric keypad in the settings menu, or navigate to this field and activate the menu with the OK button.



The following window contains the setting options for the display (left) and for the keyboard backlighting (right). Using the “right” and “left” navigation keys you can switch between the two options.

The value in the active field can be adjusted by turning the dial or using the "up" and "down" navigation keys.



The changes are executed directly and thus allow immediate control.

After the changes have been made, the "back button" will return you to the settings menu.

3.8.3 Setting the dial settings

The dial on the SmartController recognizes two types of speed settings and direction of travel settings. These are referred to as DC or AC throttle modes, since the functions are based on analog DC throttles used in the past and AC analog transformers (Chap. 3.3 "The Locomotive menu").





To change these settings, press key 3 or use the navigation keys to highlight this field and activate the menu with the OK button.
The following window contains the DC and AC options (AC style is the factory setting) which are selected with the navigation buttons and confirmed by pressing the OK button (the field selected will turn solid green).





The next line defines the maximum "double-click time" for the throttle in milliseconds. If the dial is pressed twice (double click) within this time (max. 999ms), an emergency stop command is sent to the active locomotive.

The "Last command applies" option is listed under the previous line. This is an option for layouts being operated with more than one throttle. If this function is activated, several SmartControllers can access the same locomotive at the same time and the command sent last is always executed, regardless of which throttle sent it.

Once all the settings have been made, go to the "Save" field and confirm your choice with the OK button.

The "back" button returns you to the settings menu.

3.8.4 SmartController sleep mode

If the throttle has not been used for some time during an operating session, it makes sense to go into sleep mode or shut down to conserve battery power. The time period between last use and activation of sleep mode or shutdown is adjustable. These options are set here.



To do this, press key 4 in the settings menu or navigate to this field and activate the menu with the OK button.



The following window displays the settings for switching off the screen and throttle. The desired application can be selected using the “up” and “down” navigation buttons.

A time setting (in minutes) can be selected with the “right” or “left” navigation buttons and confirmed with the OK button.

If the "--" field is selected, the shut down option will not be activated.



If the screen goes into sleep mode during an operation session, it can be re-activated with the press of any button on the throttle. After re-activation, the throttle will execute commands again.

If you choose to retain these settings, pressing the “back” button will return you to the Settings menu.

3.8.5 Select Wi-Fi network

NOTE: If the SmartController cannot connect to a Wi-Fi network after being turned on (the Wi-Fi symbol is crossed out), it will display a message asking if you want to use the "FastConnect" option. Select the "Yes" or "No" option.



The desired Wi-Fi settings can be entered into the Wi-Fi settings menu of the SmartController.

To do this, press key 5 in the settings menu or navigate to this field and activate the menu with the OK button.



Initially, the "Search" field will display on-screen. After confirmation with the OK button, the next window will ask if the throttle should connect directly with the command station via "FastConnect" or whether it should connect from a list of available Wi-Fi devices.



Here you can choose between "FastConnect" to an activated command station or "List" to show available Wi-Fi networks.

To select "FastConnect", highlight the field with the OK button. A message now appears saying "Transfer access data". Please wait for this to clear and then follow the instructions in the display.



Answer this query with "Yes". If "No" is selected, use the "left" navigation button to navigate to the "Yes" field and confirm with the OK button.



Press and hold the "II" button on the SmartBox until the "Run" and "Stop/ Fail" LEDs flash in-synch. Answer “Yes” to the query within approx. 30 seconds.

The connection is established when the two LEDs on the command station stop flashing and the active Wi-Fi symbol appears on the display.



If an available Wi-Fi device other than the SmartBox Wi-Fi is to be selected, then scroll to the "List" entry and confirm with the OK button. Now all accessible Wi-Fi devices are displayed. This list also contains the desired SmartBox, which is now selected using the "up" or "down" navigation buttons and confirmed with the OK button.



The selected Wi-Fi device now appears in the display. If you want to change the name of this Wi-Fi device, press the "down key" and the activated field will change from "Search" to the Wi-Fi symbol.

Confirm this with the OK button. The name field is now solid red and the new name can be entered using the "telephone keypad".

Complete the name entry with the OK button.



The line with the "Wi-Fi / lock" symbol can be selected here to enter the Wi-Fi password. The subsequent "OK" button will open the input field, where you can type a password that is automatically entered into the field as hyphens. If you want to exit this field without making any changes, first delete the hyphen with the “left” navigation key and then exit the field using the “back” key. If, on the other hand, a password of at least 8 characters should be assigned, this can be entered using the “telephone keypad” and confirmed with the OK button. The factory password is "abcd1234".



Finally, your entries are saved via the "Save" field followed by pressing the OK button. The display will jump back to the settings menu to select further settings.

3.8.6 General Settings (SmartController)



In the general settings menu, the throttle can be given a new name, you can set the Wi-Fi transmission intensity, you can assign a new PIN to block various input and operating options, and the Controller can be reset to the factory settings.

To do this, press button 6 on the keypad in the settings menu, or navigate to this field and activate the menu with the OK button



By selecting the first field "Controller Name" the window changes to the name input field.



In this field, the Controller name can be changed as you wish. To do this, activate the Name field with the OK button. Then enter the new name using the “telephone keypad”.

Once the name has been entered and confirmed with the OK button, save the new name in the Controller via the "Save" field. The window then returns to the general setting options.



In the submenu that follows, you can set the throttle’s Wi-Fi transmission power.



A range of values from 0 (low) to 10 (maximum) can be chosen here.

Select the menu to activate the input field by using the OK button and enter the desired value between 0 and 10 and then confirm it with the OK button.

Finally, save this change via the "Save" field in the display.

The window then returns to the general setting options.



You can assign a four-digit PIN number to the SmartController to protect sensitive data input, or to limit the throttle’s applications (a child safety lock). Select the “edit PIN” submenu to enter a PIN.



The factory-assigned PIN (0000) will be displayed on top of the solid red field while the new PIN is entered in the lower part of the solid red field. The new PIN is entered using the keypad and then confirmed with the OK button. Incorrect entries can be deleted using the "left" navigation key.
If you want to leave the menu without making any changes, the "back" button will take you back to the settings menu.



The Controller can be reset to factory settings by highlighting the last field in the settings menu. To do this you will have to use the PIN you created in the previous step. The following Controller settings are then reset to factory settings: the Wi-Fi password, the Controller name, the throttle mode, sleep mode/shutdown settings, screen/keyboard brightness, and your PIN. “Locked" menus will become unlocked.

To reset the Controller to factory settings, navigate to the "Factory settings" submenu and confirm with the OK button.



Now enter your four-digit PIN and confirm with the OK button. Once the Controller is rebooted it is restored to factory settings.

3.8.7 The Information menu



The Information menu allows you to view a wide range of information about the Controller, the track status and the SD card.

It is accessed by pressing button 7 on the keypad (while in the settings menu) or by navigating to this field and selecting the menu with the OK button.



Five submenus are displayed: "Track Monitor", "Firmware", "Image Database", "Search Online" and "Serial Numbers".



The layout monitor: This menu shows the current state of the track output on the SmartBox along with track voltage, operating temperature, current draw, and the highest current draw during the present operating session (right Value).

The green area in the "current bar" shows the present current draw in relation to the maximum possible current. The red marker shows the highest current draw during the present operating session.



The firmware: This submenu displays the current version of firmware used by the Controller, the SmartBox, and the SD card



If the firmware version on the SD card is more recent (has a higher number) than the throttle and/or the command station, then both the Controller and SmartBox can be updated to match the SD card by selecting the “Update” box for either component. You can search for the latest firmware and load it into the system by using “Station Mode”, provided your system has an internet connection. You can also download firmware updates to a PC by going to the PIKO Webshop and saving them on the SD card and then inserting the SD card into the SmartBox.



The image database: This submenu shows the system's image database as well as the database currently available on the SD card.



If the database on the SD card is newer than that of your system, then the newer database can be downloaded via the “Import” command.



Search online: This menu lets you search online for firmware updates. To search online, the command station’s Wi-Fi setting must be set to Station Mode. (see Settings menu 8 "SmartBox settings", -> Wi-Fi settings).



If you begin an online search without activating Station Mode, a message will appear on the display saying "SmartBox not in StationMode".

If your update is successful, a message will appear saying "Updates are being downloaded". The updates will be saved to the SD card and displayed in the "Firmware" menu, where they can be installed.



The serial numbers: This submenu shows the serial numbers of the **PIKO SmartBox**$_{wlan}$ (55825B) and the **PIKO SmartController**$_{wlan}$ (55823). This information is useful for service purposes.

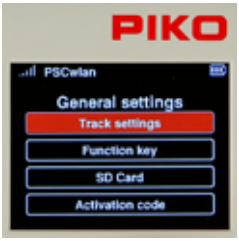
3.8.8 Settings menu of the SmartBox (command station)



To set parameters for the SmartBox, press button 8 while in the Settings menu or navigate to this field and activate it with the OK button.



The first menu option deals with the general settings of the SmartBox. Highlight it (if it is not already highlighted) and confirm your choice by pressing the OK button. This will take you to it's submenu.



The submenu contains settings for the Main track connection port, assignment options for the three SmartBox buttons, SD card settings, and in the case of a StartSet SmartBox, the option to enter an activation code to upgrade to the full version.



The track settings:
This submenu lets you set the maximum output current to the main track. It is set in 10mA increments up to two full Amps (value 200), in the first field.

To set the output current, first highlight the field using the “up” or “down” navigation buttons and the confirm with the OK button. Entered the desired value using the keypad. The maximum number is 200. Incorrect entries cannot be deleted, they can only be overwritten.

In order to activate the CutOut feature (blank interval in the DCC signal) required for RailCom® applications, navigate to the "RailCom" line and confirm it with the OK button (green field). Pressing the OK button again switches the field off.

If you want RailCom Plus®-enabled rolling stock to be registered automatically, the "RailCom+ registration" field must be turned back on, i.e. green.

Since RailCom Plus® registration must assign new decoder addresses (if necessary), the first address can be entered under "Adr Offset" from which all new addresses will be assigned in ascending order.

The "Standard DCC" field lets you set the number of DCC speed steps (14, 28, 128) that the command center will automatically assign to new locomotives. Pressing the OK button scrolls one entry forward.

Once all the settings are complete, highlight the "Save" field and save your settings with the OK button.

TIP: By saving, you can easily have the SmartBox send a new RC+ SessionID. If an RC+-capable vehicle has not registered directly, or RC+ has been switched off here, it will now be prompted to do so again.

To exit the menu, press the "back" button.



The key settings:
This menu allows you assign functions to the three SmartBox accessory buttons.



You can choose between three functions for buttons I and II.

1. Main track on (send power to the main track)
2. FastConnect (quick connection with a SmartController)
3. No function

The Stop button has two options:

1. Power off (power to the main track must be switched on again using another button or a Controller)
2. Power off / on (power to the main track can be switched off and on again using this button)



To set the desired function of a button, first navigate to the corresponding button and select it with the OK button.

Then, highlight the desired function for the button in the settings menu. Finally, confirm your choice with the OK button.

You may exit the menu using the "back" button.



The SD card settings:
This submenu lets you manage some of the SD card's data.

Each field is used to specify which data should be saved or read, both for writing to the SD card and for reading from the SD card.



To do this, navigate to the desired field and activate it (solid green field) or deactivate it with the OK button.

Settings: This field deals with the SmartBox settings.

Locomotive: This field deals with all available locomotive data sets.

Accessory items: This field deals with all available records of accessory items.

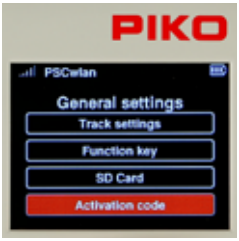
Route: This field deals with all available data records of routes.



Each of the desired SD card options can be highlighted using the OK button. The "up" arrow lets you read the SD card setting while the "down" arrow lets you write settings to the SD card.

The SD card's yellow LED flickers while reading or writing.

This menu can be exited using the "back" button.



The activation code inputs:

This field is only activated if the connected SmartBox comes from a digital StartSet. If the SmartBox does not come from a StartSet, this field will be grayed out and cannot be selected.

If the SmartBox comes from a digital starter set, then “55825A” will be displayed in the start screen of the Controller along with a text stating “Start-Set”.



This SmartBox can be upgraded to a full-fledged version via a paid upgrade. This upgrade can be purchased from PIKO dealers or the PIKO web shop. An activation code will be generated after the purchase that is entered into the fields of this menu using the “telephone keypad” and then saved using the “Save” field. If the SmartBox and Controller are restarted, the full range of functions becomes available.

This menu can be exited using the "back" button.

This concludes the general setting options of the SmartBox. You can now switch back to the SmartBox settings menu using the "back" button.



The Wi-Fi settings:

The next menu in the SmartBox settings lets you chose the desired Wi-Fi settings for your SmartBox.

To get to this menu, select “Wi-Fi settings" and confirm it with the OK button.



The Wi-Fi settings submenu is available for selection in this window.

"Max. Wi-Fi signal transmission power"

"AccessPoint mode" (the SmartBox creates its own Wi-Fi network)

"Station mode" (the SmartBox is integrated into an existing Wi-Fi home network)



Just like the controller setting, the "max. Wi-Fi signal transmission power” can be set here in a range from 0 (low) to 10 (maximum).

By finally saving via the "Save" field, the entered value is saved and you switch directly back to the WLAN settings menu.



In order to set up the system's self-contained Wi-Fi network, the "AccessPoint mode" needs be activated. This is the factory default setting. The necessary settings can be entered in the next submenu, which can be selected by highlighting it followed by pressing the OK button.



By highlighting the "AccessPoint-Mode" field and then pressing the OK button, the corresponding field can be activated (green field) or deactivated.

The next line lets you enter or change the name of this Wi-Fi network by using the "telephone keypad" method you are already familiar with.



The line with the "Wi-Fi / lock" symbol can be selected here to enter the Wi-Fi password. The subsequent "OK" button will open the input field, where the password you type in will automatically appear in the field as a series of hyphens. If you want to leave this input field without making any changes, first delete the hyphen with the “left” navigation key and only then leave this field by using the “back” key. If, on the other hand, a password of at least 8 characters needs to be assigned, it can be entered using the “telephone keypad” followed by confirmation with the OK button.

The factory password is "abcd1234".



Once all required entries have been made, they are saved by selecting the "Save" symbol and entering the four-digit PIN followed by the OK button.



If you want to integrate the SmartBox into an existing Wi-Fi home network (to check for online updates), then Station Mode must be activated.

This is found in the Wi-Fi settings menu and confirmed by pressing the OK button.



In the following window, the required entries can be made using the same procedure as "AccessPoint mode", where the name of the desired Wi-Fi network and its password must be entered here.

If these settings were saved using the "Save" icon and the SmartBox was then restarted, it is now integrated into the Wi-Fi network.

This menu can be exited using the "back" button.



System response to a lost connection:

The next menu in the SmartBox settings lets you decide how your SmartBox will respond to a loss of connection with one or more SmartControllers.

To access this menu, navigate to the "Behavior if the connection is lost" field and select it with the OK button.



Once on the menu, select the desired fields using the “up” or “down” navigation keys and highlight the desired field (field will turn solid green), or deactivate it with the OK Button.

If a throttle loses its connection during train operation and the field in the "Stop locomotives" line is activated (solid green field), all trains on the layout are stopped. If this selection was not made and there is another throttle connected to the command station, then nothing will happen.



The next options are used to specify whether only the track itself should be shut off or whether the SmartBox (track and Wi-Fi) should be shut off if the last Controller loses its connection to the command station. In the later case, the SmartBox can be reactivated using its I button. If none of the options are selected here, the whole system will remain in operation even if no Controller is connected to the command station (This is useful for a shop window layout).

Once the desired entries have been made, they are saved by selecting the "Save" symbol and the menu can be exited with the "Back" button.

Pressing the "back" button again returns you to the main menu.

3.8.9 Limiting access to individual controller menus (child safety lock)



To secure individual areas of the Controller from unauthorized access, these areas can be locked in such a way that they can only be accessed by entering a four-digit PIN.

To do this, press key 9 on the keypad while in the settings menu, or navigate to this field and activate the menu with the OK button.



In the following display, the areas that should be limited-access can be selected using the navigation keys and then locked or opened with the OK button.

A small lock symbol will now appear in the respective field.

Once all the areas to be locked have been selected, you exit this window by using the "back" button and then entering the four-digit PIN followed by the OK button.



In the main menu, the locked areas are now displayed with the small lock symbol.



If a locked area is selected during operation, the PIN for operating this area must be entered and confirmed with the OK button. This locked area can be operated until it is exited. To call it up again, you will need to enter the PIN.

4. RailCom Plus®

The **PIKO SmartControl**$_{wlan}$ is RailCom Plus® compatible,which lets RailComPlus decoder-equipped rolling stock to automatically register with the system when they are first placed on the track (Programming track or Main track). Their names, function symbols, and images load automatically into the system without the need of programming. Depending on the model and decoder type, an original PIKO image, a RailCom®-generated image, or the RailCom® question mark will be displayed on screen. Any image from the PIKO image database can be entered later in the editing mode.

If the decoder's address already exists in the system, a message will appear on the display saying "Locomotive address already assigned. New address". The **PIKO SmartControl**$_{wlan}$ will automatically assign a new decoder address, which is then programmed directly into the decoder. The number from which these new addresses will be assigned (address offset) can be set in the Settings menu (see Chapter 3.8.8 "Settings menu of the SmartBox (command station") - the track settings).
The factory-set address offset number is 1000.

"RailCom" and "RailCom Plus" can be activated or deactivated in this menu.

If a RailCom Plus®- equipped piece of rolling stock does not registered automatically, then see the "tip" in chapter 3.8.8.

NOTE: If a PIKO SmartDecoder 4.1 (firmware version, with CV7 set between 28 and 35) was entered into this command station and was deleted again, you will need to reset the decoder by programming CV8 to a value of 1.
This allows the decoder to register via RailCom Plus®.
Then program CV96 to a value of 1 to reactivate extended function mapping.

5. Technical data

a. PIKO SmartBox$_{wlan}$ (Command Station 55825)

- Voltage supply: plug-in power supply - input: 100-240 V 50 Hz, output: DC 16 V / 2,25 A
- Max. load main track output: 2 A
- max. load programming track output: 250 mA
- WLAN: 2.4 GHz – 2.483 GHz range, maximum transmission power: 100 mW
- Dimensions: 144 x 96 x 30mm - 7” x 3.8” x 1.2” inches

b. PIKO SmartController$_{wlan}$ (hand held throttle 55823)

- High-resolution 40x30mm (1.6”x1.2”) TFT display
- WLAN: 2.4 GHz – 2.483 GHz range, maximum transmission power: 100 mW
- Battery: Lithium Ion 3.7V / 1400mAh
- Dimensions: 189 x 79 x 37mm - 7.4” x 3.1” x 1.5” inches

EU Declaration of Conformity

PIKO Spielwaren GmbH hereby declares that this product complies with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://www.piko.de/konformant

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

FCC Radiation Exposure Statement 55823 **PIKO SmartController$_{wlan}$**

The equipment has been evaluated to meet general RF exposure requirement. The device can be used in portable condition without restriction.

FCC Radiation Exposure Statement 55825 **PIKO SmartBox$_{wlan}$**

This equipment complied with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

6. safety warnings

- Read and follow the instructions carefully before use
- Always treat your **PIKO SmartController**$_{wlan}$ with care! The device contains sensitive electronics, so take care to protect it from vibration or impact.
- This device is not a toy and is not suitable for children under the age of 14! It can be operated by children under competent adult supervision.
- Never insert the connection cable into a socket!
- Regularly inspect the power cord for any damage. If any damage is found, do not use it until it is repaired!
- In the event of a power outage, the track voltage is switched off automatically. You can resume operation by pressing the "STOP" button.
- Only connect accessories intended for this device.
- Only put the **PIKO SmartControl**$_{wlan}$ system into operation if you are absolutely sure that there are no short circuits or wiring errors.
- Clean the device regularly and protect it from accumulating excessive dust.
- Protect the device from moisture and humidity.
- Only intended for use in closed rooms, no outdoor use!
- Unauthorized manipulation of the hardware or software will void the warranty.
- Keep this manual in a safe and handy place.

7. FAQs

At this point we would like to refer you to the FAQ page on our website. You can find it in the PIKO web shop at www.piko-shop.de/?a=faq. There you will find the latest information on using the **PIKO Smart-Controller**$_{wlan}$ system as well as detailed video tutorials. If you get stuck, you will also find a contact form at the bottom of the website.

8. Technische Hotline

For technical questions about PIKO products, you can reach us on our technical hotline at

+49 3675 8972 55

Tuesdays from 4 p.m. to 6 p.m (Germany time)

Thursdays from 4 p.m. to 6 p.m (Germany time)

You can also send us a fax at +49 3675 8972 50
or send an email at hotline@piko.de.

Or write us a letter:

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Lutherstrasse 30
96515 Sonneberg
Germany



PIKO model trains –
for every layout!

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