

## Version 1.4.0.

### New Options and Features for the CS 3 und CS 3+ (Item Nos. 60226 and 60216) with Software Update 1.4.0.

The update to Software Version 1.4.0. for the CS 3 contains several add-ons and improvements in addition to expansions necessary for trouble-free operation of several planned additional developments in the digital area for 2019:

- I. Using the mfx+ engineer's cabs for all locomotives and powered units
- II. New features
- III. Additions for specialists

#### I. Using the mfx+ Engineer's Cabs for All Locomotives and Powered Units

A large number of engineer's cabs for all types of locomotives and powered units in the World of Operation mode are built into the CS 3. Many model railroaders expressed the wish to us that these engineer's cabs be usable for more than just mfx+ models. This is now possible starting with this software version. Here it plays no role whether we are talking about a locomotive or powered unit with an mfx, DCC, or MM decoder. The consumption simulation that allows varied operations is retained however on units with mfx+ decoders.

#### Setting Up the Engineer's Cabs

There is now a new selection field "Operation Mode" in the menu "Locomotive Settings". This is for all models without mfx+ functionality. By selecting one of the engineer's cabs that is offered, the appropriate cab window can now be called up as desired on the locomotive controllers for the CS 3.

To do this, set up the locomotive on the right or left locomotive controller for the CS 3. When you now open this locomotive



controller using the complete screen, the cab in question will appear. Please note that there may be function combinations on a model that cannot be displayed completely on the cab in question.

## II. New Features

First, we want to thank users of the CS 3 for the many suggestions for improvements and wishes for further development of the CS 3 sent to us. You will see in the following overview that we have already been able to take several of them into account here.

### Grid in the Track Diagram Editor

A grid can now be displayed in the track diagram editor, and individual items can be positioned on this grid when setting up a track diagram. The grid dimension can be set. You get the best results when you follow the recommendations given there. The grid is set in the new menu item "Track Diagram" under the main menu item "System".



This grid function can be turned on and off when editing. Please note that track diagrams created previously in the CS 3 cannot use this grid function retroactively. When the grid is turned on, unavoidable malfunctions in the display of these track diagrams may occur.

By the way, the separate button for ending the track diagram is no longer present in the editor menu. This is now done as with other functions using the entry point to this area.

### Setting Different Speed Displays

The speed display can now be shown optionally in km/h, speed levels, or in percentages.

The percentage display is activated by entering the value 10 in the setting for the maximum value for the tachometer. If speed levels are to be displayed, then select 126 for mfx units and 14 for MM units. On DCC decoders, the value set for the locomotive in question under "Speed Levels" in the setup menu must be used. This display is identified by a dot in front of the value.

With all other settings, the speed display is then active in km/h.

## Displaying a Round Tachometer

A number of people converting from the CS 2 to the CS 3 have missed the round tachometer display from this controller. This option is now available on the CS 3. This display is only possible on the right and left locomotive controller. To do this,

drag the red dot with the locomotive symbol on the lower edge of the locomotive controller up to the middle of the screen. The system will then switch to this new display form. Please note, when this display form is selected on both locomotive controllers, this view takes up the complete screen.

### New Locomotive Icons

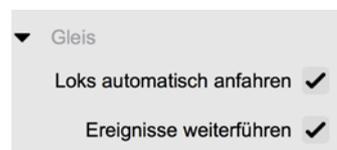
This update increases the number of locomotive icons in the CS 3 to over 2,000. Please note that you may have to select the new images manually for individual locomotives so that they are displayed there.

Note about frequent errors when using these icons:

- The image files are only stored in the CS and not in the decoder. The decoder only remembers the name of each image. When registering the locomotive, the CS then searches for the image name specified in that locomotive's file.
- A CS 2 and a CS 3 each use their own image files. A locomotive icon can be displayed on both devices only if the icon is stored in both files with identical names.

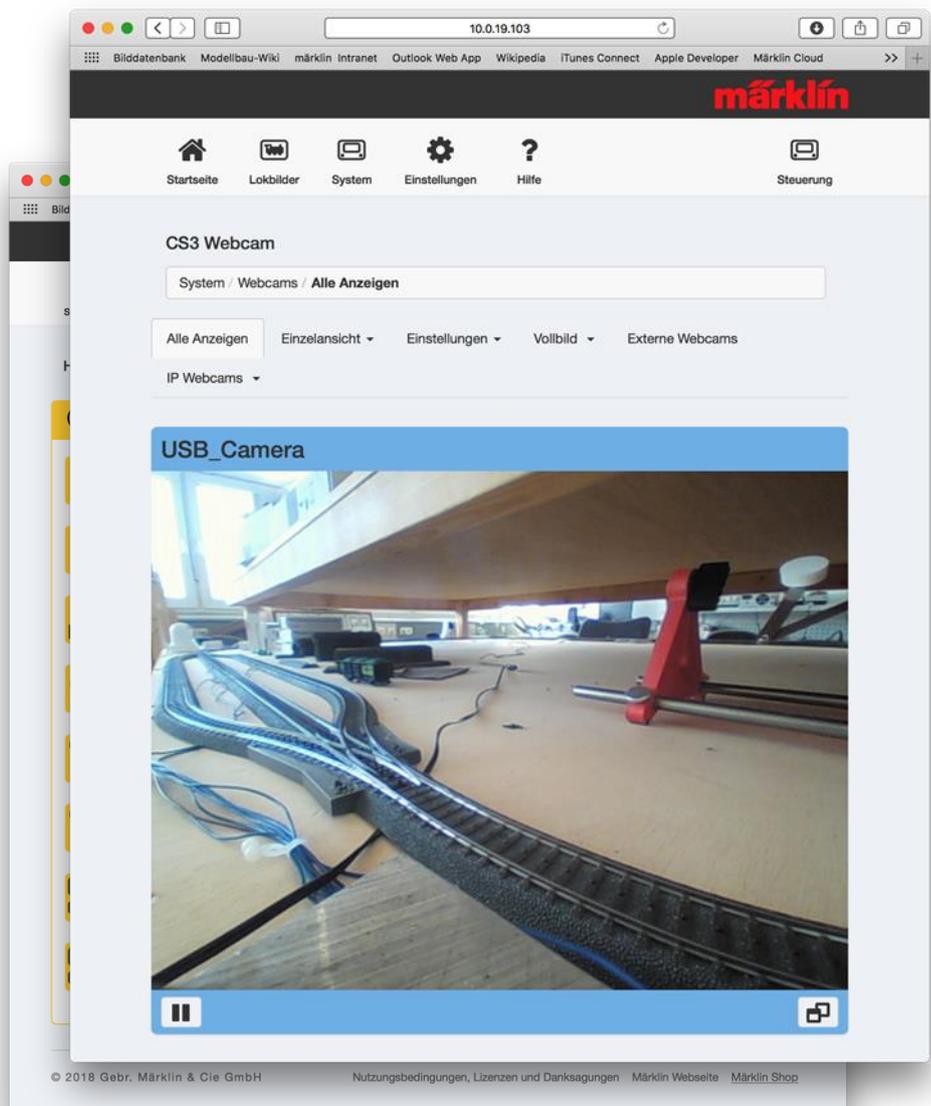
## New Options When Ending / Starting Operation

Under System => CS 3 => Track, the CS 3 can be preset in such a way that all locomotives, powered units, and events can be stopped at the end of an operations period and after operations are resumed at this point all locomotives, powered units, and events are continued again. To do this, a new point "Continue Events" must also be selected in addition to the previous entry "Automatically Start Locomotives". When the continuation of events is selected, the automatic starting of the locomotives is also necessarily turned on.



## View of the Help Function by Means of a Web Browser

The CS 3 now offers the option of having the built-in "Help" information files displayed on a PC, laptop, or Tablet PC connected by means of a router.



## Using Video Cameras to Monitor a Layout

Together with a PC, laptop, or Tablet PC connected by means of a router, the CS 3 now offers the option of being able to display images from USB cameras or IP cameras connected by means of the Web browser to the PC, laptop, or Tablet PC.

In principle, several cameras can be connected to the system. Only one of the USB cameras can be active at a time. IP cameras clearly take up less computing power on the CS 3. Therefore, several of this type of camera can be used at the same time.

### III. Add-Ons for Specialists

The CS 3 offers the trained specialist a series of additional options chiefly in the processing of events. Years of experience with the use of such processes and algorithms as well as knowledge of the underlying mathematics and computer science are necessary for the application of these options. No introduction in the world can simply replace a multi-year study of these special areas.

Anyone not feeling at home in these techniques should therefore limit themselves to the basic techniques such as staging yard control or block route control. For applications that are more complex it is imperative that the user be able to create and design correspondingly complex procedures. Here, the hands of the Märklin customer service are tied regarding help. An appropriately complex procedure must be described in detail so that an expert could test it. This would still be an extremely time-consuming process, whose costs no model railroader would be ready to pay. We therefore hope you understand that even the Märklin customer service can only give rudimentary support here.

Something new now is the option to define different logical macros and incorporate them in events. The following basic elements are available here:

1. AND macro. Checks whether specific conditions are fulfilled. If all of these conditions are correct, then the process moves to the next step. Optionally, the event can also be negated (NAND). This means that the process moves forward only if not all conditions are correct.
2. OR macro. Checks whether at least one of the specified conditions is correct. Only then does the process move forward. Here too negation (NOR) is possible.
3. IF THEN ELSE macro. When a specified condition is fulfilled, then the process moves to another specified procedure. If this condition does not happen, then the process moves to another defined procedure. The function can also be applied without the ELSE branching.

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4. LOOP macro. A loop is carried out until specified events are valid or while they are valid.
5. RANDOM macro. An event is carried out with a specified adjustable randomization.
6. BRAKE macro. This macro is used so that a locomotive can be stopped before a signal with the braking delay set in the locomotive and without hardware for a braking module. To do this, contacts are necessary for the braking section, the stopping section, and for a safety area, in case a locomotive might slide through the signal.

We hope you will have a lot of fun exploring the new options on your CS 3.

Your Märklin Service Team