märklín DIGITAL CLUB

NEWSLETTER

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Digital Consultants
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Current Central Station 2 Version – 4.1.2
Current Mobile Station 2 Version – 2.5

The April Central Station 2 (CS2) update is now available for download.

Now that the CS2 basics are covered in the previous newsletters, we can begin to spread out and get into components and how to use them. We know that we have just scratched the surface of the CS2 usage, so there are many things that we did not cover. Please feel free to call or e-mail us if you have other questions on the capability or use of the CS2.

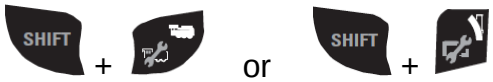
Several people have requested that we cover the basics of the Mobile Station 2 (MS2) #60653 and #60657. When I first started this article, I thought it would be a piece of cake. The MS2 is such a little controller so I thought, “How hard could it be?” I didn’t realize how powerful this controller is for primary layout control.

Mobile Station 2

First I think I need to explain how to use the MS2. Since the operation of locomotives is intuitive, I will skip this part and get into the basics of the MS2 set-up and usage. There are many buttons. Fig. 1 shows the functions of the buttons when in a “Set-up” screen.

Fig. 1 Function of buttons

To enter the MS2 set up page and to edit a locomotive setting you first press and hold the “Shift”, key and press the “Turnout” button with the wrench or the “Locomotive” button with the wrench. This is an important step as it will be used often (See below).



As with all components, they are set up in the native German language. To set the MS2 to English (or another language), hold down the “Shift” key and press the “Track/Wrench” key to get into the “Menu” page (Fig. 2).

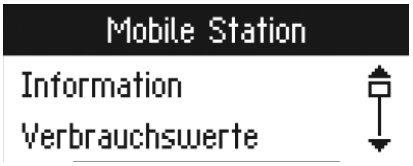


Fig. 2 MS2 setup screen (German text)

Next, push the “Scroll Down” button once until you see the word “Sprache” (Fig. 3). Then push the “Select” button next to it.

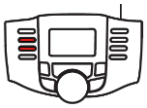


Fig. 3 Select “Sprache”

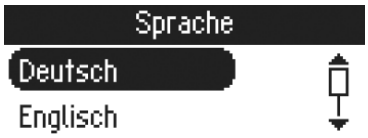


Fig. 4 Select “Englisch” if desired

Now other languages can be selected or push the left button next to “Englisch” to select English (Fig. 4).

Now we can explore the MS2 in our respective language.

Entering a Locomotive

As one would expect an Mfx loco will register itself. As for non-Mfx locomotives, press and hold the “Shift” key then press the “Configure Loco” button. From this “Configure Loco” screen, select “New Loco”. From here there are four options:

From Loco List

Here the locomotive can be entered from a list of previous “Free” locomotives. These locos are stored in a library to be called up at a later date when there is an available locomotive slot. If a new locomotive is entered in an occupied slot, the MS2 will move the previous loco to the “Free” list and the new locomotive will be entered in the selected slot.

At this time, I do not know how many “Free” locos can be stored in the MS2, I stopped entering locomotives when I reached 30.

From Database

This is where a locomotive can be entered using the catalog number. When this is selected, just scroll through the numbers with the knob. Use one of the “Select” buttons to enter the number once it is found.

Enter Manually

When “Enter Manually” is selected, the type of decoder should be known. The options are:

MM2 Coding Switches
MM2 Programmable
DCC

MM2 coding Switches are the first generation decoders in a locomotive that the user would set the address of the decoder with dipswitches. The addresses are 1-80.

MM2 Programmable are decoders that do not have dipswitches and they are addressable from 1-255. The address is changed in the CVs (Control Variables) of the decoder.

DCC decoders are addressable from 1-10239 by use of CVs also.

Select the desired decoder type by pressing the “Select” button beside it. Enter the decoder address by pressing the button next to the “+” or “-”. Then press the button next to the check mark to enter it.

Now a name needs to be assigned. Hold down the “Shift” key and turn the knob to scroll through the alphabet. The buttons next to the arrows will move the cursor. There is also a keyboard option that some might find more useful. Press the button next to the keyboard and then hold down the “Shift” key and turn the knob to scroll through the alphabet. In this mode you select the letter by pressing the knob down while the “Shift” button is being pushed. Once the name is entered push the button next to the check mark.

Now select an icon that suits the type of locomotive being entered by scrolling up or down with the “Scroll” buttons and pressing the “Select” button next to the icon, or hold down the “Shift” key and turn the knob to scroll through the icons. Once the desired icon is on the screen, press the select button next to the icon.

Find

If the decoder information is not known, the “Find” selection can be useful. The MS2 will search for a decoder on the track. ** It is important to note that you must only have the locomotive that is being “searched for” on the track **. Once the locomotive has been detected you can assign it a name if there is none, and an icon.

Setting the Function Icons

When a locomotive is entered manually or if the “Find” selection is used, the function icons will be set as default icons. To change them hold down the “Shift” button and push the “Locomotive Edit” button. Scroll down to the “Loco Functions” and select it.

From here you can select any icon position to edit. After the desired function button is pressed, there will be many icons. Scroll through by pressing the “Shift” button and turning the knob. Once an icon is selected, choose whether the function is momentary (Temp.) or “Continuous” and press the lower right button next to the check mark. Now you can continue to change icons by pressing the “x” ✖ or save the changes and exit by pressing the check mark ✔.

These are the basics of the MS2 language and locomotive set up. Next time I will explain the basics of the information side on the MS2.

Enjoy Your Hobbies!
Rick Sinclair

Troubleshooting Registering MFx & MFx+ Locomotives

Getting a new locomotive is an exciting process. However, putting it on your layout and having it fail to register can raise a certain degree of panic. The same sort of feeling applies if the new locomotive registers, but doesn't appear to function as it should. The question is what to do? Here is a list of troubleshooting tips that expand on an initial solution that Rick wrote about in our last newsletter. In this article, I will re-iterate his article, then talk about some more solutions that we have since discovered.

Loco not found in list

If you see the locomotive being read by your Mobile Station or Central Station, but the controller appears to have stopped reading or doesn't read in a familiar manner, it is possible that it is entered into your system. This is more of a CS issue. First go to your locomotive selection list. Then check in the upper left of the window where is reads "all" or "last used". The default is "last used" and it only displays the last items that were controlled by the CS. Select "all" in order to see every locomotive that has been registered in the CS. This is a master list of registered decoders. Sometimes a registered locomotive can sneak its way into that list. This is often the case if the CS attempts to register more than one locomotive at a time.

Fig. 1 Locomotive Selection list displays "All" or "Last Used" locomotives

Partial Registration

If a locomotive has registered but it doesn't seem to work as it should, there is the possibility of a read error when registering with the system. The first thing we like to do is to delete the locomotive from your controller's database. Removing the locomotive from the track before deleting is a good idea, because it helps to insure that the CS2 doesn't "see" that the locomotive is still on the track and may not properly delete the locomotive from the registry. In other words, a faulty memory tag that is left in the CS2 will prevent it from re-reading it correctly from the locomotive. I do this by cycling the "stop" and "go" button on your CS2. Basically, stop the track power, turn it on to "go", then give the controller a moment to verify that the locomotive no longer exists. Then I will stop the controller again, replace the locomotive on the track, and let the Controller reregister the locomotive as if you were putting it on for the first time.

MFx not being identified by CS2

Some of the newer locomotives are now equipped with socket style decoders and even clip on sliders. We have been getting some inquiries that the locomotives won't even register with the CS or MS. One thing that we have found is that the decoders and sometimes the sliders have gotten loose, either from transit vibrations or even being knocked about. Check that the slider is firmly in its clip, and check that the decoder has not been unseated. Your manuals will typically give you directions on how to access the decoders. Open them up, if you're comfortable doing so, then check that the decoder is firmly seated on its plug mount. Passenger trains with powered units at each end can fail to operate if both ends units are not connected. Make sure that you have the complete set of cars necessary to run your locomotive. Check the manual for this requirement.

Suppression Errors

If part of your layout includes items that were received in a starter set, then one item that is no longer required is the Noise Suppression device. If this item (Fig. 2) is in your layout and your MFx do not seem to register at all, then this may be the culprit. Its suppression activity is preventing proper registration of any MFx chip and is no longer required in a digitally controlled layout.

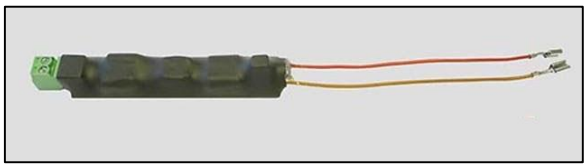


Fig. 2 Suppression unit supplied with some starter sets

Functions work, but train does not move

If your locomotive has registered and you have most of your decoder functions like sound and lights but the locomotive doesn't want to move, then you might want to check that the oil in the drive mechanism hasn't dried up making the wheels and gears sticky. Your locomotive's wheels should have a little bit of side play and should jiggle freely. Do not force the wheels, as there are some locomotives whose drive mechanisms can be damaged. A service technician can clean this up and re-oil it if you are not familiar with this process. If you are doing this process yourself, only one drop of oil at each lubrication point should be sufficient. Over-oiling can do as much to hinder a drive mechanism as sticky oils. I've done it myself, but trust me, I've only done it once (so far).

Locomotive has slowed and will not increase speed

If your new MFx+ locomotive starts off running fine, then suddenly slows to a crawl after a certain amount of time, this is not a problem, but a feature that is found in the prototypical operation of an MFx+ locomotive, which is set in pro or semi-pro mode. This mode of operation may have been set as a default from the factory. It is possible that the loco will be in pro-mode or semi-pro mode, but not be displayed as such on the CS2's screen (Fig.3).

Fig. 3 Advance Modes (pro, semi-pro) and refueling indicators

Pro-modes require the operator to replenish the operating supplies that a prototypical locomotive requires, like sand, water and coal. By selecting the refueling icon, the refueling screen will be displayed. The user must then press on the appropriate supply in order to replenish the supply. Another option is to set the Consumption rates to 0 to prevent the refueled items from depleting.

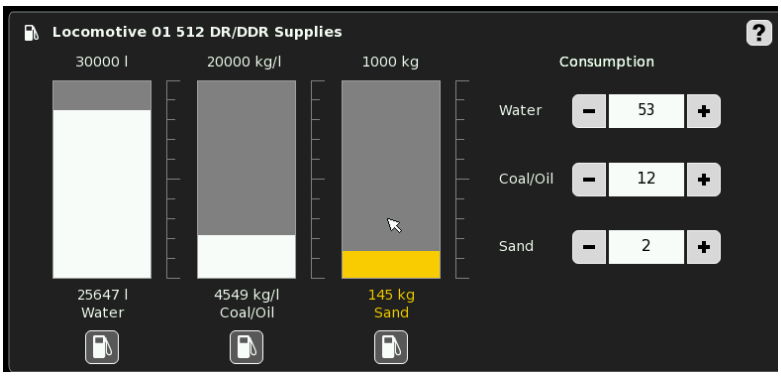


Fig. 4 Refueling pumps and consumption rates

A final option to alter the slow running behavior would be to change the running mode to ‘Standard’. Fig. 5 shows the menu list for the different mode settings found under the “Operation Mode” menu. Changing the MFx+ modes is not simply a CS2 setting, but a decoder setting. The alteration of the running mode MUST be saved and written to the locomotive’s decoder. Changing (and saving) the alteration, in the CS2 only, will not have any effect on the operating mode of an MFx+ enabled locomotive. As mentioned before, the CS2 may hide the pro-mode and refueling icons, but the locomotive will remain in the pro-mode state.

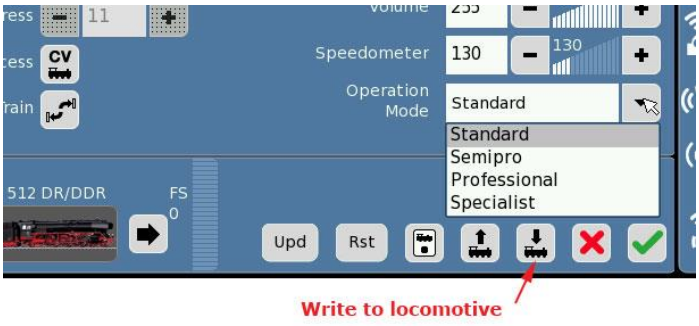


Fig. 5 Operation Mode menu and write to locomotive icon

The troubleshooting guide that I have supplied here contains some of usual remedies for problems a few of our readers have come across. Please be assured that these are not common faults found in locomotives. If you do find that one of your locomotives seems be misbehaving, then these suggestions should be helpful to review. As always, we welcome any correspondence to assist you further.

Happy Railroading,
Curtis Jeung

Track Automation: Blocks, Signals, and Brakes

Back in our first issue for the Digital Newsletter Vol. 27 No.1, published in 2015, where I began the task of how to automate sections of the layout using the Central Station 2, I started with set up theories for simple track blocking. Unfortunately, I could not review the process of automation until the foundational elements were explained and finally concluded in our last issue (Vol. 28 No. 2). Which brings us full circle. We can now return to how to automate our first example of track blocks, now that we have explained the rudiments on how the CS2 can control a simple block or blocks within a layout.

Track blocks defined

Track blocks are basic elements in the overall scheme of a layout. How I define a block is any single line of track where only ONE train may be in occupation. The minimal amount of blocks that can occupy a layout in the interest of automation is 3 blocks. This is true for some basic reasons:

- Having 1 block and 1 train is a loop and can be considered boring.
- You need one more block than you have operational trains. But, having 2 blocks and 1 train is like telling yourself when you may enter or exit an empty room, pointless.
- Having 2 blocks with 2 trains means there is no unoccupied block for a train to travel to.
- Having 3 blocks with 2 trains is much more exciting, because there will always be a train waiting for another train to clear a space (block) before it may enter.

What separates our blocks

Visually, prototypical Main Line blocks are separated by signal lights, commonly Home Signals. In yards, blocks can be separated around signal lights and turnouts. For this article, I will focus on the simple Main Line blocks. Fig. 1 shows 3 blocks on a main line loop, each block has similar components: Contact ("c"), Signal ("s") and stop section or brake area ("b"). Signal and stop can either be a single device like a signal light with track control outputs. Or they can be paired devices, like signal lights and a separate brake module or track relay (k84 output).

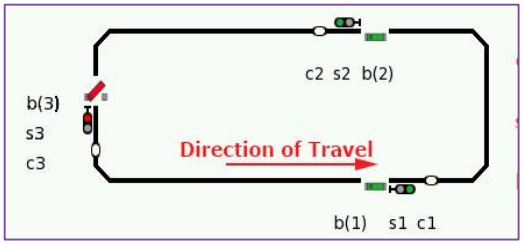


Fig. 1 Default block setup

Controlling blocks with momentary sensors

Momentary sensors read a short triggering signal that are set by the center ski on a locomotive, or they can be set from a magnet while using a magnetic reed switch. Table 1 shows the memory routing scripts needed for each of the sensors on the main train line. By comparing the script "C1" in Table 1 and images in Fig. 1 and 2, you can see that activating the trigger at c1 will set the signal "s1" to "stop" and set the signal at "s3" go "go". Note also, that the stop sections "b(*x*)" in Fig. 2 are switched as well, but not included in the script table, because the stop sections were often set through the signal light when using a momentary contact.

Contact ID	C1	C2	C3
Script Steps	S1 - Stop	S2 - Stop	S3 - Stop
	S3 - Go	S1 – Go	S2 - Go

Table 1 Momentary type sensor (circuit tracks) scripts

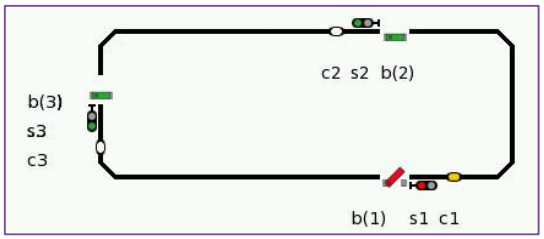


Fig. 2 Routing change (from Fig. 1) after execution of script "C1", using circuit track

Controlling blocks with contact tracks

Contact tracks allow the controller to sense when a train enters or exits a block. For simple track blocking, this offers the ability to determine when a train first enters a track block, and when a train has fully exited a block. This type of control is not so easily accomplished with just circuit tracks alone. If you are not familiar with how to set your Central Station 2 to use contact tracks, please refer to Digital Newsletter Vol 28 No. 2.

Table 2 scripts out the routing steps for our 3 block loop. It has separate Route scripts for entry and exit triggers for each of our 3 contact sensors.

About the Table

Table naming notations indicate:

-Contact ID number

-Trigger Type (entry or exit, aka in/out, "i" or "o")

For further information and instruction, please see Digital Newsletter Vol 28 No. 2

Contact Id	C1 i	C1 o	C2 i	C2 o	C3 i	C3 o
Script Steps	S1 – Stop	B1 - Stop	S2 – Stop	B2 - Stop	S3 – Stop	B3 - Stop
		S3 - Go		S1 - Go		S2 - Go
		B3 - Go		B1 - Go		B2 - Go

Table 2 Contact track sensor scripts

Prototypically, when a train first passes beyond a block signal light, the light aspect will switch to “stop” or red. The entry script for “C1 i” is activated by sensor “c1” (Fig. 3), the moment the locomotive first passes the signal light (“s1”) and enters into the next block. Its solitary script step changes the S1 Signal light to the “Stop” aspect. The sensor at “c1” is filled in with yellow, indicating an entry point trigger has been activated as well as track occupancy. While the Signal light has switched to “stop”, the stop track “b(1)” is unchanged from its original position set in Fig. 1. The advantage for this setup is that the stop section at “b(1)” will not interrupt track power to any subsequent power draws on the consist (i.e. secondary locomotives, passenger car lights). This behavior is unlike the momentary sensor example found in Fig. 2 where the stop section and signal light had to be changed in unison, thus cutting power to any of the aforementioned power draws. We now have separate control between signal lights and stop sections.

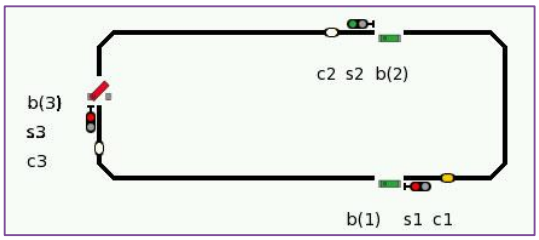


Fig. 3 Routing change (from Fig. 1) after execution of script “C1 I” using entry of contact track.

In the prototypical world when a train has completely and safely cleared a block, signals when a following train is allowed to enter into the vacated block. The exit script at “C1 o” in Table 2, shows the script steps allowed once the train has completely cleared the block passing beyond the signal at “s1”. The exit script is indicated by the now empty sensor at “c1” which was previously filled yellow (Fig. 4).

The script steps will:

- Set the brake or stop section at “b(1)” to stop, thus immediately preventing any locomotive overrun through to the next block.
- Allow any waiting train at “s3” to now enter into the newly vacated block by setting the signal light (“s3”) and stop section (“b(3)”) to “go”.

This example shows the two steps necessary to control a single block in a layout. The scripts in Table 2 show the steps for our 3 block layout. The script steps for “c1” (“i” or “o”) are repeated for each of our sensors at “c2” and “c3”. Only the assigned signals or stop sections (“s” or “b()”) are changed accordingly.

When scripting, it may be convenient to think of how a train controls the trains behind it. Notice how the control sensor at “c1” was used to control the operation of the train waiting at “s3”. This is the reverse of the examples found in the previous newsletter (Vol 28 No. 2) where the sensors for a staging yard were used to control locomotives “in front” of the control train. Please refer to that issue for clarification.

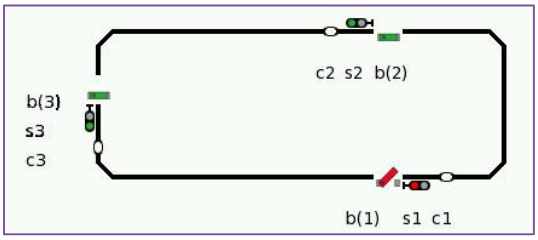


Fig 4. Routing change (from Fig. 3) after execution of script “C1 o”, using exit of contact track.

I hope you have found this to be helpful in setting up an automated track blocking. While some of the instruction in this article is somewhat abbreviated, many of the explanations are based in the run of articles found in Volumes 27 and 28 (most importantly Vol 28 No. 2) and to repeat them here would be impractical.

It is likely for some that complete automation of your layout is not a primary goal of operating your model railroad, however, a good automated block control has proven invaluable in preventing unobserved track collisions when your focus may be pulled elsewhere. If you're like me, it can be a fun challenge to have many trains on the layout where I cannot single-handedly monitor them all.

Curtis Jeung

Upcoming Appearances:

NMRA National Train Show
July 8 -10
Indiana Convention Center
Indianapolis, IN

National Garden Railway Convention
July, 8 -10
Santa Clara Convention Center
Santa Clara, CA

Eurowest 2016
July 23 - 24
Hiller Aviation Museum
San Carlos, CA

Trainfest 2016
November 12-13
Wisconsin State Fair Park
West Allis (Milwaukee) WI

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