NEWSLETTER
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Digital Consultants
Rick Sinclair
Curtis Jeung

Current Central Station 3 Version – 1.3.3(1)
Current Central Station 2 Version – 4.2.1(0)
Current Mobile Station 2 Version – 2.7

This year has flown by and we are getting ready to celebrate the holidays. As always, we would like to wish you all a happy and safe holiday season.

We recently attended two shows back to back. First, the Denver Rocky Mountain Hobby-Expo in late October. It was very nice show where we got to share the world of Märklin Digital with many new people. The good news is we were in and out before any snow fell.

The second fall show was Trainfest in Milwaukee. This is a huge show with a terrific turnout. A highlight for the staff and the folks who stopped by our booth, was having Marco Loeffler, a factory representative join us for the weekend.

The first article in this issue is a project featuring the replacement of a signal post on the Märklin grade crossing. It is a simple fix if your crossing has been subjected to “less than favorable conditions” from little hands. In our second article, Curtis explains how to create a shuttle with 3 station lines at one end, but a single station line at the other.

Replacing the Signal Post on the Märklin Grade Crossing

I mentioned in the last issue that the grade crossing post was not available for the 74923 grade crossing (Fig. 1), but the part is available for the 7292 M/K crossing.

I had ordered the part to test if the old 7292 part would work in the new crossing. I am happy to say that it fits perfectly without any modifications.

Here is how to replace the post.


Fig. 1 - Grade crossing 74923

Removal

I start by removing the crossing arm. This is fragile and I don't want to break it off since it does swing up and down. I was afraid that my sleeve would catch it, so this is more of a safety precaution (Fig. 2).


Fig. 2 - Crossing arm removed

Once this was done, I took a look at the crossing post. The wires for the lights run in a channel on the backside of the post. The first thing I need to do is to remove the clip that retains the light bulb (Fig. 3).

The wires are hidden very well using a black wire over a yellow wire to make the wires less visible. The black wire is soldered to a clip that contacts the light bulb. The yellow wire underneath contacts the side of the bulb. It is a simple matter of gently removing the clip / bulb (Figs. 4 & 5).

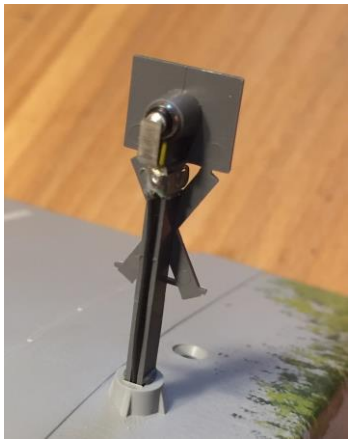


Fig. 3 - Retaining clip


Fig. 4 - Clip removed


Fig. 5 - Bulb / wires removed

The wires feed down in the channel below the surface, so it is important they are removed from the channel before the post is pulled out. The post gets removed with a firm pull (Fig. 6). I am sure if the post is broken off, it might be a little bit of a challenge getting the piece out of the hole, but I believe it can be done even if the cover plate needs to be removed from under the crossing (covered in previous articles).

Comparison

As a comparison, I put the replacement post (left) next to the original post to make sure that they are compatible (Fig. 6).


Fig. 6 - Both posts side-by-side

The next step in the process is to verify the old part does in fact fit in the new crossing. It just popped in the hole, although it was slightly harder to press in than the original one. I can see where a small amount of filing would take care of this if needed (Fig. 7).


Fig. 7 - Replacement post installed

Installation

Once I verified the fit, I promptly re-installed the original mast. I started by inserting the yellow wire deep into the channel. The end of the wire had a bend in it that I used to align the wire in its original configuration and length, and then the same was done for the black wire. (Fig. 8).

Now it is just a matter of feeding the wires into the hole and then inserting the post. After that, I can insert the bulb and clip (Fig. 9) and test (Fig. 10).


Fig. 8 - Wires installed


Fig. 9 - Post installed


Fig. 10 - Final test

The only thing difference that I noticed about the new part is that the lithography tends to flake off when the plastic is flexed. You can see it in the white of the “X” in the pictures with the replacement post. I don’t see this as much of a problem as I can remove the lithography from the “X” and re-paint it. I did not do this, but I will if I ever replace a broken post.

Part Numbers

One last thing I want to share is the part numbers, should you need to order them. The grade crossing arm is part number E412700. If this part is replaced, there is the possibility the mount for the gate will need to be adjusted so that the arm will swing freely up and down. This goes for the new and the old units. The post part number is E412660. This is for the old unit but works just like the new one.

Happy holidays and enjoy your hobbies!

Rick Sinclair

Event Step Conditions and 3 to 1 Shuttle Layout

At the beginning of 2018, the topic of my first article was about setting up the advanced scripting for a multi-line shuttle. You could create a track rotation of *x* number shuttles around *x* number of end station lines. At the time, one of the primary restrictions was you needed to have an equal amount of end lines, as you would shuttle trains. For those of you who remember your high school algebra (decades ago), that's what the 'x' stands for.

In the previous two Digital Newsletters, I have been praising the Märklin developers over a significant update to the Central Station 3/3 plus event scripting (a.k.a. memory routing). I had written the details on what the changes were and how to access them. This was the ability to add conditions to an event that went beyond track sensor readings. It allowed for evaluative conditions regarding how a turnout was set, or a signal light, to name a few examples. What I didn't have was a clear practical suggestion in how you can use this significant change.

If you haven't guessed, this issue will give an example of using advanced track conditions that will alter the first of the year article shuttle restriction of needing equal track lines for each shuttle. You should be able to see how to apply the advance conditions now afforded to your event scripts. The previous shuttle instruction used 3 shuttles that required 3 lines at each terminal end. In this article, I will discuss how it is possible to create a shuttle with 3 station lines at one end, but a single station line at the other.

What You Need to Know

Before you get started with creating a variable line shuttle layout, you'll need to reference Volume 30, No. 1 2018. (To request a copy of this newsletter, please contact Brenda at club@marklin.com.) This article will give you instructions on the basic locomotive setup for use in a shuttle line. It contains 3 scripts for each locomotive that includes: a stop script, a script to set the loc in a forward direction, and a script to set the loc in a reverse direction. It is a shuttle track after all.

The basic track plan for this layout is shown in Fig. 1. As you can see, I have three station lines that will go to a single end line. What is different from what you may have seen in my previous articles are the sensor icons. In the CS3 you can set the contact sensors as 'End Contact' and they will display as track bumper icons. The functionality is the same.

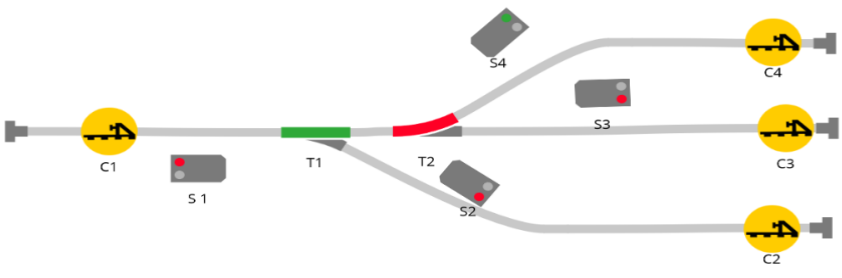


Fig. 1 - 3 to 1 shuttle line layout

There is a consideration of sensor location depending on whether you run 2-rail or 3-rail track. For our regular Märklin users, a contact track can be activated by any car in the

consist provided your cars are using AC track style wheels. For 2 rail operation, I did my practical application using an LGB track demo layout. Contact tracks were read into the CS3 using an 'S88-DC' version and the sensors were only able to detect the locomotive only. They will likely not read un-modified rolling stock, as they are not current conductors. This is important, because you'll have to adjust your contact track locations for where the locomotive will be, depending on where you want to activate the event script. In other words, which end of the train the locomotive is on. The same may be said for digital N scale (Minitrix), but I didn't have the equipment to run a proof of concept test.

A Short Summary to Vol. 30, No. 1

I will summarize the script theory for the 3-line yard, as it was explained in detail in Vol. 30, No. 1. When an arriving train makes contact with the sensor 'C2,' it will activate 4 steps:

1. Stop the incoming train (at 'C2').
2. Re-route the switches for an outgoing line (in this example, T1 and T2 will be set to straight).
3. The signal 'S3' will be set to green (or proceed).
4. The train on 'C3' will have its direction and speed activated to exit the yard.

Using this example, I now have a script method that every incoming train will stop and send the next one out onto the mainline. Again, look to the aforementioned newsletter for visual details on how this was set up.

Now, for the tricky part. Each train that exits the 3-line yard will enter the single line endpoint 'C1' and must return back to the same line that it came from. Logically speaking, you can see (even from the previous example) before the train exits the 3-line yard, the turnouts will be set for the exiting train. Recall, the 2nd step from the previous paragraph, that the turnouts were set. Therefore the track is set to receive the train when it returns. You can tell that track routing will not be an issue.

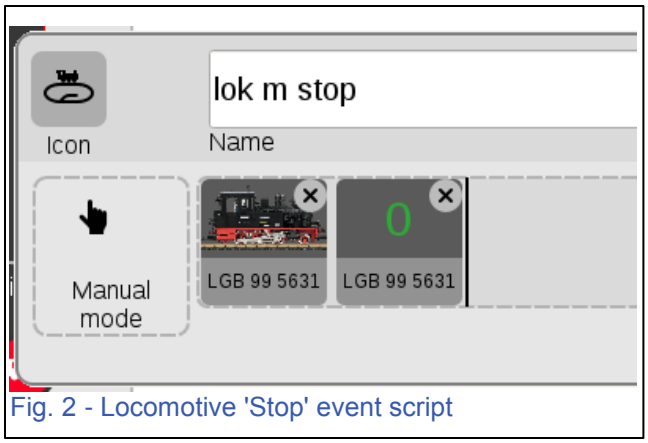


Fig. 2 - Locomotive 'Stop' event script

What will be an issue is the contact at 'C1' needs to:

1. Stop the entering train.
2. Send the train back to where it came from.

While each contact at the 3-line station has 1 specific loc to control (stop and send forward), we are now dealing with a single contact that will essentially need to deal with 3 locomotives (stop and send backwards in reverse).

Let's tackle the first control step, stopping the train. When a train makes contact with 'C1', we can take a previous created event script (again explained in Vol 30, No. 1, but illustrated here). In this case, it is a stop script for 'lok m' (Fig. 2). Note that it is not

direction dependent, and it's only command is to set the speed to 0. The icon 'Manual mode' means that there is no track trigger to activate this script.

Viewing the events list (Fig. 3), you can see the three event scripts for 'lok m'. The red circles indicate that all three lok scripts are manual and NOT track activated. We want these scripts to be track activated for automation purposes, however, there is a reason why I keep these specific events as manual control. In a shuttle track, a train would need to stop at each end of the line with each having their own contact trigger. One method would be to add the stop steps similar to Fig. 2 into each contact event, but I find that each locomotive has their own stopping characteristics and I would have to look into each contact script to edit whenever I change running locs.

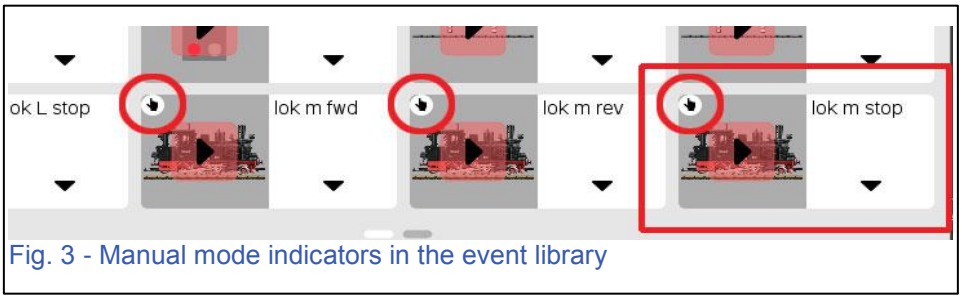


Fig. 3 - Manual mode indicators in the event library

Event Nesting

In the example I am trying to illustrate, it would be simpler to create a single stop script event (from the above Fig. 3 - red box) and add it into an automated event script. This is called 'Nesting,' when you place an event into another event. Fig. 4 illustrates this concept. You can see our manual event 'lok m stop' has been placed inside the event labeled 'c3 a' (left arrow indicator). You can also see there is another nested event ('lok s fwd') and the event is now track triggered for automation (red box). When contact 'c3 a' gets triggered, it will now automate the manually controlled event 'lok m stop'. The benefit of this method over the previous paragraph's method is I only need to edit the single lok event, and not risk altering my automated script ('c3 a') that includes turnouts and signal switching.

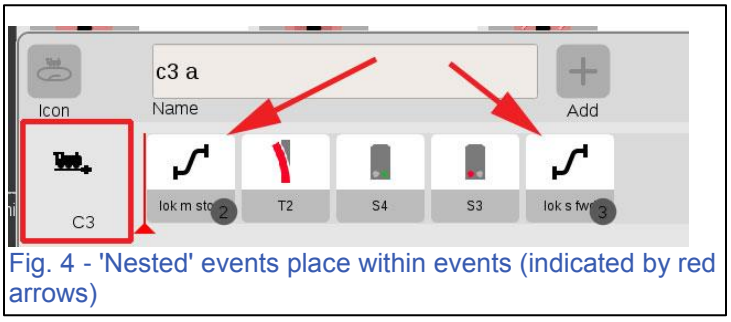


Fig. 4 - 'Nested' events place within events (indicated by red arrows)

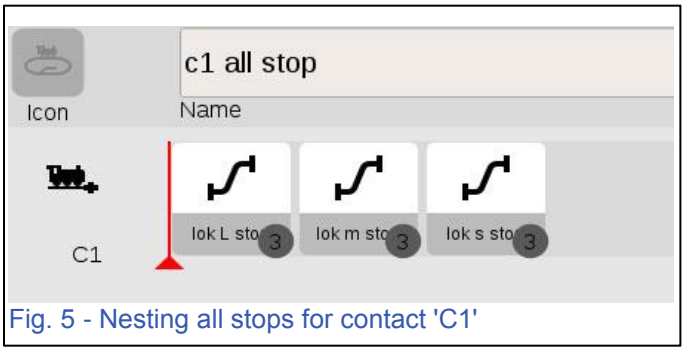


Fig. 5 - Nesting all stops for contact 'C1'

In the last two paragraphs, I took you on a side road to explain nesting. The original point was to discuss our step 1 process (from the previous page), stopping a train on our single line contact 'C1.' I can create a single contact event for 'C1' and add my stop events for each of the locs from each of the 3 lines at the opposite end of the track (see Fig. 5). In reality, it is best to create three separate events with a separate stop in each, and I'll explain why later.

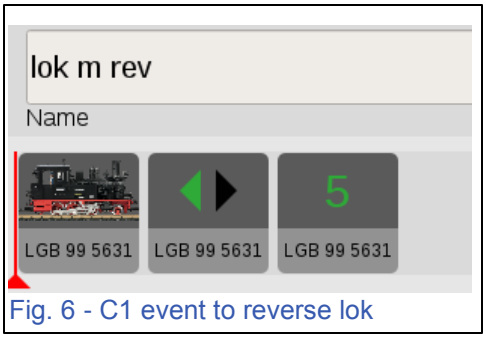


Fig. 6 - C1 event to reverse lok

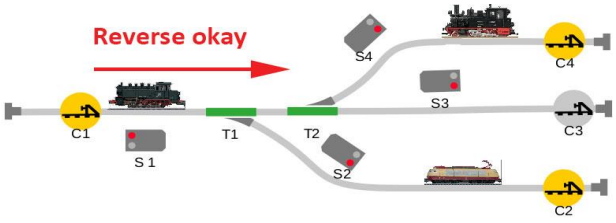


Fig. 7 - Track operation still okay

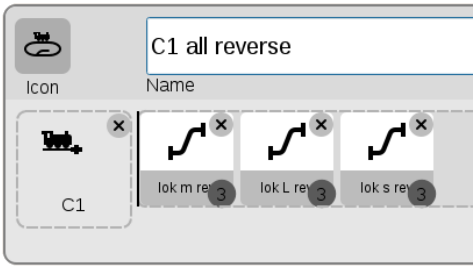


Fig. 8 - Combining 3 reverse events into 1 will cause errors

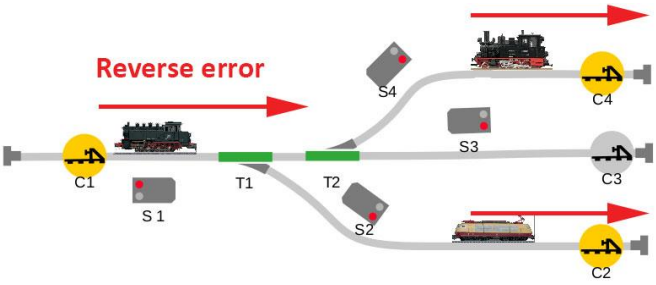


Fig. 9 - Reverse error caused by event script in Fig. 8

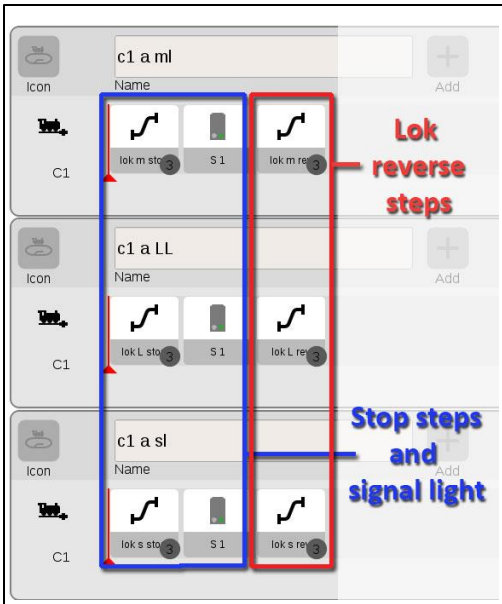


Fig. 10 - Independent 'C1' contact events for each lok

Step 2 of the process would be to send the incoming train back to where it originated. You might think you just need to send the train back, because we set the turnouts correctly when the train left the 3-track station. I'll explain why it's not so simple. Using contact at 'C1' and a single train script 'lok m rev', I can easily send the train back to its track shown in Fig. 6.

In Fig. 7, I have added the two additional loks that would be stationed at the 3-line station. Using the same script, you can tell the operation would still function correctly. 'lok m rev' would still send the M train back to the correct track.

Now, consider this, all trains will eventually need to use contact 'C1' to send the train back to the 3-line yard. You couldn't write a combined event script like our stop event (displayed in Fig 8), because the single contact would make all trains move at the same time (Fig. 9). You will need to create 3 independent events for each lok (Fig. 10). As they are written, you would still have the same error, because even though you have three different events, when you contact 'C1' you're still activating all event scripts that are triggered by 'C1'.

Notice that I've added into each script a locomotive 'lok stop' step as well as the signal light step prior to the 'lok rev' step. It is easier to add the stop step into this 'C1' trigger, because I would need an independent script for each train from the 3-line yard. I can now delete the combined stop step illustrated in Fig. 5, because it is an unnecessary 4th script, as well as being redundant.

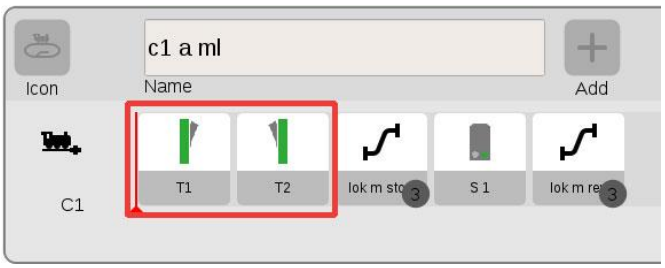


Fig. 11 - Expanded script to include exit path of lok

Setting Advanced Script Conditions

To solve the problem of inappropriate event scripts, we get to use the advanced mode functionality presented to us in the CS3 software update V1.3.3 (1). The update allows us to evaluate the software condition of a turnout or signal in order to control an event. I say 'software' condition because, if you were to change a track's switch position on the layout, it wouldn't change the icon in the CS3. The CS3 uses its own internal information to know which way a switch is set.

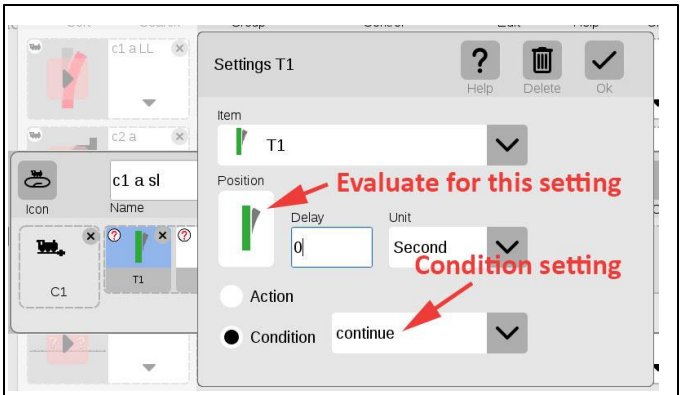


Fig. 12 - Advance settings for event steps

In Fig. 11, you can see that I have added two steps into my event for 'lok m rev.' They are the turnouts that were set on the exit path of the train from the 3-line end. It will simply try to switch those two turnouts as they are displayed in the script. If we can use them as a reference from where the train originated from, then we can distinguish that particular train from the other two.

By entering into the edit window for these two steps, I will alter them so that they are now set to the advance setting of 'condition' instead of 'action'. I will also set the option to 'continue', which basically means, "if this icon matches that of the CS3's software setting, then I will continue on with the next step in the script." If it doesn't match, then it just exits and cancels out the completion of the event. I show the advanced step settings in Fig. 12. When you close this window, the event steps for my added turnouts will now have a "?" mark on their icons (see Fig 13). This indicates that the step is an evaluative condition rather than an action (like switching a turnout).

Hopefully you'll notice event conditions are quite powerful tools to have. Fig. 13 shows the event conditions for my 3 locs that are triggered by 'C1.' Each script uses the two turnouts to determine which line the train came from, and then can successfully activate the proper event script. By the same evaluation of turnouts, they cancel out the process for the other two events, because they wouldn't match where the triggering train exited at the 3-line yard.

The example written in this article lists the method I used for 3 trains in my 3 to 1 track diagram. I was also able to enhance this process using the methods written about here,

to run a single train which rotates through all three lines. It integrates techniques used in a shadow station or Schattenbahnhof. To see this in action, I am including a couple of video links to see the 3-1 track demo in action. Please excuse the audio as I recorded it when time afforded during an in-store demonstration.

https://youtu.be/t9hUIekJT8A
https://youtu.be/Gv8YfAtAY28

I found I was able to implement this track with 1 or 3 trains quite easily. By thinking it through, I discovered running just 2 trains on this layout creates a unique challenge when compared to the other two options (1 or 3 trains). The solution to running 2 trains is complex enough where it will be a topic for another newsletter. In the meantime, I hope you found this article intriguing enough to expand on the way you can add terminal stations to your layout.

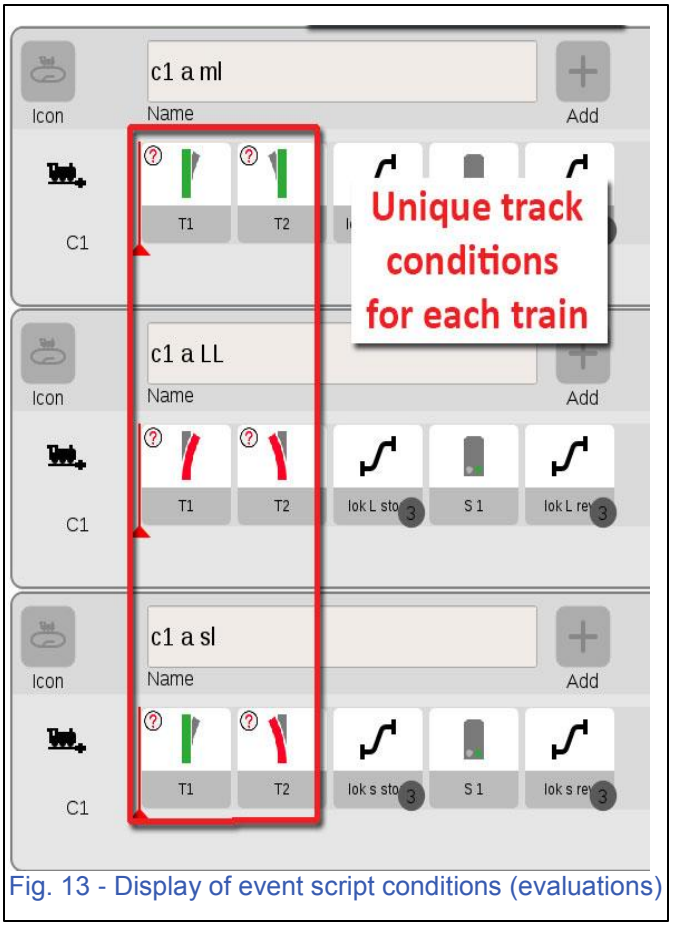


Fig. 13 - Display of event script conditions (evaluations)

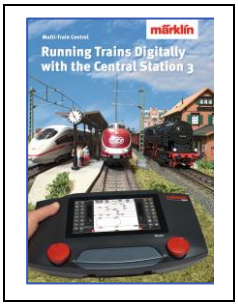
As an added challenge, I'm including a track plan I want to share, which you can give thought to. I've included most of the necessary sensor locations. Can you think of where other sensors may be needed? The passing line is set for right hand passing. I did not include the signal stops, but consider why the sensors work at the existing location (tip: think about arriving and departing triggers).

Fig. 14 - An event scripting challenge track

As always, I thank you for your ongoing interest and I wish you Happy Holidays.

Cheers!

Curtis Jeung



Available from Märklin Dealers!

Running Trains Digitally with the Central Station 3

This book provides extensive information about the Märklin Digital system. It contains all of the essential information about the new controller Central Station 3. Another focal point is the description of the new generation of decoders. In addition, all of the Märklin Digital system's components are featured with complete explanations of their use on a Digital layout.

191 pages in the DIN A4 format. Version with English text. #03092

Upcoming appearances:

Amherst Railway Society Railroad Hobby Show
Eastern States Exposition Fairgrounds, Mallary Bldg, Section 156
1305 Memorial Ave
West Springfield, Massachusetts
January 26 – 27, 2019

Rocky Mountain Train Show
Denver Mart
451 E 58th Ave
Denver, CO
March 2 - 3, 2019

NMRA National Train Show
Mountain America Exposition Center
9575 S State St
Sandy, UT
July 12 - 14, 2019

EuroWest
Hiller Aviation Museum
601 Skyway Rd
San Carlos, CA
July 20 - 21, 2019

National Garden Railway Convention Public Show
Doubletree by Hilton Portland
1000 NE Multnomah St
Portland, OR
August 31, 2019

Trainfest
Wisconsin State Fair Park Expo Center
8200 W Greenfield Ave
West Allis (Milwaukee), Wisconsin
November 9-10, 2019

Rick Sinclair, left, and Curtis Jeung demonstrating the CS3 plus at Trainfest 2018.

To contact Rick and Curtis for help with your Digital, technical and product related questions:

Phone: 650-569-1318 Hours: 6:00am – 9:00pm PST. Monday through Friday.

E-mail: digital@marklin.com

Märklin Digital Club · PO Box 510559 · New Berlin WI 53151-0559