

NEWSLETTER

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Current Central Station 3 Version – 1.3.0 (0) Current Central Station 2 Version – 4.1.3 (3) Current Mobile Station 2 Version – 2.5

Since our last newsletter, we have been hard at work answering technical questions and playing with trains. We have received a few suggestions from members with topics for articles (wonderful – keep them coming!) and the questions we field have given us ideas for future articles. Both articles in this issue have come from suggestions or questions.

The topic for our first article came from a request to do an upgrade on a steam locomotive. The second article will discuss the set-up and operation of the new generation M83 (60831).

Steam Locomotive Upgrade

I realized after reading a member's suggestion, that I had shown conversions of two electric locomotives in my past articles. Even though there is little difference between a steam, diesel and electric locomotive when doing conversions, each locomotive model is unique in its own way and you must overcome the challenges that come your way. The challenges are both physical and mental, and you will see both in this article.

Round 1

I've had a Belgian Series 26 (34156) on my workbench for a couple of years. It has been there that long because I started a basic conversion and it never felt right because it's not personally one of my favorite locomotives.



When I received the member's suggestion to do a steam upgrade, I thought this is the perfect opportunity get the Series 26 off my bench with this upgrade. I ordered a mSD3 steam sound decoder (60985). This should work well and it will have sound. It is important to note this decoder follows the NEM wiring color scheme. This means the connections are made with different colors of wire than the standard Märklin colors.

I started with the teardown and motor upgrade from a couple of years ago (Fig. 1). I had installed the 60941 high efficiency motor kit. This is the same procedure as the last two upgrades, so there aren't any pictures of this process.

This decoder has bare wires and a plug for an 8-pin socket if the locomotive is equipped to receive it (Fig. 2).

I originally planned on using the 8-pin plug and I was going to make an 8-pin socket. This way I could remove the decoder in the future and install it into a locomotive that I prefer (Fig. 3).

I soon realized that this was much more work than I wanted to do to this locomotive and would be difficult to explain in an article, since there would be another speaker plug and socket that I'd need to fabricate.

At this point in the mental challenge, I decided to start over with a new decoder and directly wire it into the locomotive.

Round 2

With another mSD3 decoder in hand, I quickly realized that I would need extra function ground wires. Since this kit did not have a decoder





Fig. 3 Adaptor plugs

adaptor plate. I wanted to solder them to the decoder as I had done in a previous article. The NEM color for function ground return is blue. So I removed the shrink tubing and soldered two additional ground wires to the decoder (Fig. 4).



Fig. 4 Additional ground wired added

Once the function ground wires were in place. I put new shrink tubing around the decoder.

This install still does not feel right and it looks very messy at this point (Fig. 5). The good news is, wires are very thin and the insulation is very soft. They are easily manipulated into the bends and curves that I need without breaking.

I made the wire connections for the slider and the wheels. Then I connected the rear light since it is in the tender (Figs. 6 and 7).



Fig. 5 Decoder in place





Fig. 7 Pick-up connections

I took the wires that will be routed to the boiler and installed a piece of shrink tubing around them, so they are in a nice neat bundle. I didn't shrink the tubing because I want a loose fit for flexibility (Fig. 8).

I installed the motor chokes and tested the direction of travel. This time the direction was correct! That makes me 1 for 3 (if you are keeping track), and I didn't forget the motor brushes – a small victory.

Now, I route the wires neatly between the decoder in the tender and the motor (Fig. 9). I also routed them up to the front headlight and the smoke unit contact in the channel where the original wires were.

At this point, I want to test fit the body. I do this to make sure everything fits inside. Experience has taught me that the Class 52 style of locomotives from this era do not have much room inside the boiler for the motor to "swing." The swing is due to the articulated frame.

As I suspected, the motor chokes hit the body and I do not get a full swing. This is a little annoying since they are installed and, "I should have known better!"

Up until this point, I had been thinking about



Fig. 8 Shrink tubing around wires



Fig. 9 Neatly routed wires and chokes

where to install the speaker and how nice this locomotive (that I don't like very much) would sound. The annoyance of the whole project finally got the better of me and I decided to install this sound decoder in a locomotive that I really like.

Round 3

So, here I am. I'm on my second decoder and I've just decided to install it into a second locomotive. The locomotive that I really like is a 3417 Reihe 63a. This is a Norwegian steam locomotive (Fig. 10).

Since both locomotives are basically a class 52 from the same Märklin era, all of the previous wiring should fit inside this locomotive easily.

I had done a conversion of this locomotive years ago from Delta to Digital. This means that I already had the motor upgrade kit installed.

Once I took off the boiler, I could see where I placed the motor chokes years ago. A "younger me" glued them to the permanent magnet for motor clearance. It's not the most elegant solution, but it was creative (Fig.11).

I had installed a 60901 decoder into this locomotive. I noticed that the original solder pad was still inside the tender. This is to give yourself more function ground wires in a fairly neat manner (Fig. 12).

Since I had already installed more function ground wires, I'll remove and save these solder pads for a future install.

I decided to relocate the motor chokes to the tender. They both fit nicely under the decoder. I also mounted the speaker. I had to use silicone glue in this case, because of the curve of the tub tender (Fig. 13). The speaker wires (red and black) were soldered to the brown wires from the decoder and insulated with shrink tubing (not shown).

There is a significant amount of weight in this tender. There is a large weight in the front, and two large brass cylinders in the top of the tender under the coal load. There are also two more on the underside of the rear deck.



Fig. 10 Beautiful Reihe 63a locomotive



Fig. 11 A "younger me" installation of the motor chokes



Fig. 12 Old decoder and solder pads



Fig. 13 Speaker mounted





The weights under the rear deck were interfering with the speaker. The top of the tender was not closing completely, so the weights had to be moved (Figs. 14 and 15).

Now I can solder the front lights (white and blue wires) and smoke generator contact (green). I tied all of the wires neatly as in the past and installed the boiler body.

The last thing I had to do was to remove the extra function wires that were not needed. I cut them short and put some shrink tubing on them. Then I tucked them under the decoder. There were also a couple of wires for sound synchronization. I left all the wires long enough to be used (if needed), but short enough to be hidden, then re-assembled the tender.

The manual gives the NEM wire colors and which contact they are for, but here is a brief rundown:

Red – Slider Black – Chassis Ground Orange – Motor Grey – Motor White – Front light Yellow – Rear light Blue – Aux/Light Return Green – Aux 1 Violet – Aux 2 Violet/Yellow – Aux 3 Violet/White – Aux 4 Blue/Black – Ground for Sound Synchronization Blue/Orange – Sound Synchronization 1 Blue/Yellow – Sound Synchronization 2 Brown (2) – Speaker

In all, I think it is better to use a decoder upgrade kit that has the adaptor plate for ease of installation.

Some of you might have noticed that I soldered two blue function wires to the decoder, but I actually only used one of them. Since I like this locomotive so much, I plan on giving it an accessory function. I will cover that process in my next article.

60985 mSD3 Sound Decoder 60941 High Efficiency Motor Kit

Enjoy your hobbies!

Rick Sinclair

M83 (60831) – An In-Depth Look

Many of our users are quite familiar with the M83's (60831) predecessor - the K83 (6083). But when comparing the two, the M83 has a few upgrades, which makes these nice for controlling accessories with momentary control. The M83 is still fairly easy to set up in your Central Station as usual; however, you may see there is quite a bit more you can consider beyond just switching your turnouts.

First Look

When you pull an M83 out of the box, you will notice some of the design changes, which makes this an easier unit to connect than its predecessor. Märklin has designed this with screw terminals and external dipswitch access. No longer will you need to deal with tiny

screw plugs, or dismantling the case to assign or change digital addresses.

Additional external plugs are for chain connecting multiple units together (DB9 plugs), and a plug insert for the switched mode power pack (SMPP, 66365/66367). There are a couple of points to consider about these two connection plugs. First, M83s and M84s can be clustered together using the DB9 plugs' connections. See Fig. 1.



Second, the power supply input is not a requirement

for use with the M83, but if you choose to supply it with SMPP power it requires an additional device, the Universal Power Supply Unit (60822). Despite their names, do not confuse the 60822 with a 66365/66367. You will need the 66365/66367 to supply power to the 60822, which can then be attached to either an M83 or an M84.

Whether or not you'll need to use a switched mode power pack is a bit more complicated than just operating without leeching off your layout's track power. Hopefully, you will see some of the complexity in the next section.

Signal Inputs (red/brown connections)

Old K83s required the red/brown wire connections for each unit. This connection is for receiving the digital instructions to switch the appropriate output on the device. It also served to supply enough power to 'pull' the switch to the required setting.

M83s (and M84s) no longer require each red/brown connection to be wired, which depends entirely on how you choose to assemble them for your layout. If you connect your M83s in a cluster using the DB9 ports, only one set of red/brown connections need to be made. The digital instructions and power to the switch will all be transferred to the other devices via the DB9 plugs. If you decide to have multiple clusters, each cluster will require a single red/brown connection to be made. Please note that under this example, we are using track power to activate the relays for each unit or cluster.

Notes about Track Power

There have been concerns about the drain on the layout when using track power to control M83s. I think it is important to offer some considerations regarding this idea and I don't have any recommendations to counter any personal preferences on the matter.

In an analog system, voltage to the track was the main regulator regarding the speeds of your trains. Original turnout switchboxes could relay some of that track power to flip a turnout switch. This could momentarily drop power to the track causing some speed variances around the layout. In theory, this may have been the origin to the negative effects of wiring *83s with track power.

In a digital system, there is no voltage regulation to the track. A digital layout will always have full operating voltage applied. Any momentary drain to the system is not likely to alter the speed of your trains, because the speed of digital trains is set at an encoded value. Also, you would have to be running enough locomotives at a specific power block's capacity for an M83's operation to cause digital control degradation. At that point, you may have already lost digital control of other accessories like signal lights or even a locomotive.

So why would you need the switched mode power pack? I think the answer lies in if you cluster your M units (83s, 84s) together. It is possible that the SMPP allows for signal reinforcement so that the input (red/brown) signal does not degrade when transferring through any number of M units. I also think that this is more likely when using the recommended SMPP with the 60822. The 60822 (Universal Power Supply Unit) has its own red/brown connections and you'll only need to use these connections instead of any other connected unit. You can think of it as a track booster for M83's where it strengthens the signal for the connected units. The 60822 also has connections for use with the older k83/k84 units. With this combination, it is possible that all M and K units can be operated via the 60822 and without any direct connections to the track power wires.

Deciding the need to augment your M units with an SMPP (66365/66367) and/or UPSU (60822) is about finding balance. Connecting isolated M units around the layout is more economical with only track power feeds. I believe there is no problem in operating 2-3 connected units with a single red/brown connection without an SMPP. Using 4 or more M-type units connected, the 66365/66367 + 60822 combination may be better served by using

this combination to activate a main cluster of M units, without any adverse signals to your track. The choice is yours.

Address Settings

First, beyond the standard dipswitch address settings typical of any *83/*84 unit, it is now possible to operate the M83's with DCC control. This is dependent on the setting for the #10 dipswitch. Leaving it in the 'Off' position will set the M83 for operations with Märklin protocol. Setting the #10 switch to 'On' will set the M83 for use with DCC digital addressing methods. The Central Stations (2 and 3) are capable of operating under both protocols.



One thing to remember, whatever setting you set

the #10 dipswitch to, you must also set the Central Station's configuration for this device to match. This is found in the Keyboard>Configuration window under the 'Protocol' setting for the CS2. For the CS3, look under the article (device) settings for the unit. See Fig. 3.

You can set the address of your M83 so it is set purely by program, as opposed to the manual address created by the dipswitches. All dipswitch settings will need to be set to 'off' and the address can be set using the program track output of the CS (see below). In this instance, alterations must be made to CV1 and CV9



according to intended use. For most users, manual dipswitch addressing will be all that is necessary and can stick to that.

Adding to your Central Station

M83s are primarily used as turnout switch decoders, allowing you to digitally control up to four turnout motors. Each output is sequentially addressed from the set address of the number one output. In other words, when you set decoder address to 1 (for output 1), the outputs 2-4 are locked in with the identical decoder addresses (2-4). Likewise, setting the decoder address to 13 (output 1), locks in addresses 14-16 (outputs 2-4). Be sure to have all

four keyboard locations in your CS2 cleared, otherwise you may have an unknown device being switched by the duplicated control.

For Central Station 2:

To add the M83's controls to a CS2, go to the allotted keyboard slot (based on the address desired) on the CS2 and enter the configuration



mode. From there you'll need to be sure that the 'Device' type is set for 'New Multi-decoder' (Fig. 3). You may also set the 'Protocol' pull down menu for either 'MM' (Märklin) or 'DCC' (anything NOT Märklin). There will be more about this option later and it can be changed. Clicking the check mark, will save the settings and you will see an outline that highlights the reserved spaces allotted for the M83 (Fig. 4).

For Central Station 3/3+:

Select the 'Edit' icon to 'Add Article'. Next you can select the article type that you wish the first output on the M83 to represent (i.e. turnout, light, etc.). See Fig. 5.

The 'Settings Installation decoder' window will popup. From the 'Info' tab, select the 'Add Multidecoder' radio button. If you click on the '-' or '+' of

the 'Address' field, you'll notice that the address settings will change by a count of 4. This is based on the addressing possibilities as denoted in the M83's manual. You may set the fields for 'Type' and 'Protocol' (Fig. 3).

Next, click on the 'Set Up' tab. It is important to set the 'Decoder Type' to 'New Multi-decoder' otherwise the dipswitch settings for the device will not match. This will also prevent the proper instructions to be sent to the device. You can now click the check mark to add the device (Fig. 6).

The CS3's article list will only display actual items properly added into the CS3's library. When you added the M83, it will only add the first address article. This is a nice feature over the CS2, because it does not require you to look through pages of accessories when they are not yet assigned (Fig. 7). Notice that I changed the

? ? STOP STOP C Edit Track Board Page Turnouts Edit Article List 🛱 Signals Add Article P Light Discover mfx itmes O Turntables Misc Devices S88 Contacts W 1 Fig. 5 Adding articles into the CS3





name of the M83 for clarity of the example.

Adding Extra Articles into the M83 - CS3/3+:

To fill in the other three functions of the M83 - select 'Edit' first. Next, click the 'Edit Article List' to enter the edit selection mode. You'll notice in Fig. 8 that the article list now displays the M83 that was added. The M83 designated the M83 as 'A', and at the time of this writing I am guessing that the next added M83 may be



designated as 'B' but I haven't proceeded to test the theory. This designation has also been applied to the recently added article, shown by the black dot with an 'A' on the article itself, even though the article itself has been renamed to 'M83.1'. I assume that it associates itself with the M83 unit. See Fig. 8.

By clicking on either one of these two icons, the 'Settings Multidecoder A / M83.1' will be displayed. This window will display 4 Address spots along the bottom, when viewing the 'Info' tab. The first will be the entry when you added the M83. The next three will be to enter in the additional M83 connections. See Fig. 9.

Select the 'Address' icon where you would like the additional accessory to go. Once it is highlighted, you can select the type of accessory from the 'Type' pulldown menu. You can now click the 'OK' button (check mark) to save. No other parameters need to be changed as they should have been set when adding the initial M83 configuration. You will now see the additional accessory articles displayed in the article list.



Conclusion of Part 1

It was my intention to offer you a full overview on the capabilities of Märklin's M83. Unfortunately, due

to some variances in advanced programming over the two Central Stations (CS2, CS3), I have decided to delay the advanced settings required with CV editing and allow for better understanding of the process. As you may have noticed, discussion of the power supply involved more complexities than I even imagined. Look forward to my next article, when I get in-depth with the CV settings on the M83.

Curtis Jeung

Upcoming appearances:

National Garden Railway Convention Train Show Renaissance Tulsa Hotel & Convention Center 6808 S 107th East Ave Tulsa, OK July 15, 2017

EuroWest

Hiller Aviation Museum 601 Skyway Rd San Carlos, CA July 22-23, 2017

Trainfest

Wisconsin State Fair Park Expo Ctr West Allis (Milwaukee), WI November 11-12, 2017 To contact Curtis and Rick for help with your Digital, technical and product related questions:

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