Central Station 1 (60212) - programming signal 76394

Also applicable to other 76xxx digital signals, and possibly helpful for CS2 (60213 or 60214) and second generation Mobile Station 60653.

Be aware that the 76xxx range of Marklin signals were sold as version 1 and version 2. Version 1 signals have no sticker (V2) on the box, and were subject to replacement to version 2 by Marklin free of charge. You can buy version 1 signals quite cheap, but they will be useless unless you can arrange with Marklin or a dealer for replacement. At this late stage there may be some charge.

I have attempted to use Marklin instructions sets, even from the signal book, and the electrical wiring book, which both elucidate on 76xxx digital signals. However I found them confusing, becaue they use the example of older pre-Central Station controllers such as 602x and keyboards. Even the CS1 manual lacks detail, and is not concise enough, or logical enough for me to use with a CS1. I have, after mastering the process, written the following.

There are 5 distinct steps in using a Marklin digital signal for the first time.

1. Create a "virtual" signal in the CS1 Central Station 40212 with the appropriate symbol.
2. Install the "virtual" signal in the Operations section of the CS1.
3. Connect the actual signal to the CS1 for programming from the Operations section of CS1 while it is still in the package.
4. After programming, remove the signal from the package, and also remove the wire clip (contact bracket) from the signal circuit board.
5. Install the signal on the layout.

1. Create a "virtual" signal in CS1:

First, switch on CS1, and use the GO button. Creating the virtual signal has nothing to do with connecting the actual signal. On the top of the screen hit the icon showing signals and turnouts (Accessory Setup). You choose "New Solenoid Accessory" (even though this is not actually a solenoid accessory, it is a digital accessory).

Allocate an address number between 1 - 256. Because locomotives are allocated an address by Marklin between 1 - 80, I have chosen to make my signal accessories start at 200. Key a number into the address field.

Give it a name, for example, W (for West) E (for exit) 3 (being the third signal at West end of the station, and also odd number for westbound). That is WE3. You can add on the next line Exit/Sh, because in this example we are setting up a 76394 signal which includes a "calling on" set up for shunting past a red light. {As another example, I use E (for East end of station), I (for ingress/entry) 5 (being an odd number allowing entry of westbound trains. Or EE4, would be East end, exit, signal number 4 (even number) for eastbound trains}.

Choose the type of signal from the pictures as a symbol. There are really only 5 possibles for the 76xxx series. The basic rule for German and continental signals is that:

Hp0 = Stop = red or 2 red

Hp1 = Go = green

Hp2 = Go slowly = green and yellow

Hp0/Sh = Stop and proceed for shunting only = red and 2 white Choose "Switch" and "2500ms" in the appropriate boxes.

Now hit the Tick box to save it.

2. Install the "virtual" signal in CS1 Operations:
In CS1, open the Operations area (icon at bottom of screen, also known as Activation field, or Turnout Controller area) and choose one of the tabs above or below, that are numbered 1-74. I chose number 1, because it is my first use of CS1 for controlling accessories. Then choose the "tablet" or control set-up icon at top of screen. This shows two rows of 8 icons. These show dark if empty, choose an empty icon. This will then ask you to select from your list of accessories. The "virtual signal" you created will be listed, so choose that. It then puts that signal into the Operations screen ready for programming. It is there also, that the signal will be available for operation by CS1, on the layout.

3. Connect the signal directly to the CS1 for programming:
First hit STOP key in the CS1. Connect the yellow and brown wires in the signal package, directly to the red "B" and brown "O" track connection wires of the CS1. If CS1 already has these connected to the track or layout, you will need to disconnect them, to connect to the signal. Yellow to red, and brown to brown. The CS1 should now no longer be connected to track, or your layout.
Now hit GO key in CS1. The signal will now be in programming mode, and this is confirmed by the lights on the signal flashing red-green alternately. You have 30 seconds to start programming. If you don't start programming, the signal will simply go into a demonstration state by cycling though all the light aspects.
You already have the Operations screen on CS1 open, with your virtual signal on screen. Touch the image, and it will open up the four (4) different aspects of this 76394 signal.
Choose Hp1 (= green, GO).
Because one more setting is required in 76394, the signal starts to blink again as green yellow and white.
This time choose Hp2 (= green/yellow, SLOW).
{If there are any more settings required (on signals other than 76394) the signal starts to blink again, and you will need to choose another signal aspect to continue programming.} If the programming is complete, all the signal lights flash at once and stay on for 5 seconds, then begin a demonstration mode.
Hit STOP key in the CS1. Programming is complete.

4. Remove the wire clip (contact bracket), and test:
Disconnect the wires from the CS1, remove complete signal from packaging, and then reconnect the wires to the CS1. When you remove the entire signal from the package, note that it consists of the signal head, mast and base, and a circuit board which is designed to fit neatly under C track.
Around the circuit board, and shielded by cardboard underneath, is a simple bent wire clip. This is a temporary circuit wire for programming, and must now be removed. You will notice it clips from one side to another of the circuit board, and can be pushed from above on one or both sides, and it will fall away, or just pull on both ends of the cardboard butterfly fashion.
If you do not remove this wire clip, the signal will just go into programming mode again when connected to the layout.
Hit the GO key on CS1, to test the signal functions. You will now be able to use the icon in the Operations field of the CS1, to change to any one of the four (4) aspects available on the 76394 signal. Show all positions of the signal in turn, using the icons in the CS1 Operations screen for your new signal.

When switching from red to green, you will hear a slight 'click' from the signal decoder.
{You can at this stage use the "Edit Solenoid Accessory" under Accessory Setup icon at top of screen, to change the time interval from 2500ms back to 500ms. Apparently this is the best setting for signal operation, but in practice it seems to make no difference.} Hit the STOP key on the CS1.

5. Install the signal on the layout:
You can disconnect the wiring to CS1, and reconnect the CS1 wiring to the layout. The diagrams shown in the 76394 manual quite adequately show the connections for the layout.
First use the STOP key on CS1 before connecting.
From the circuit board, Yellow wire goes to "B" Bahnstrom red connection, and Brown wire goes to "O" return brown connection. (The package includes a Red/Brown wire set if you wish to substitute that). One red wire goes to the isolated section of track to automatically stop the train. If you want to visually obey signals, you don't need to connect that wire. The other red wire goes to the "B" connection on the layout.
The circuit board clips quite neatly under C track.
Now use the GO key on CS1. The newly installed signal may show any aspect, but you should now be able to use the icon in the Operations field of the CS1, to change to any one of the four (4) aspects available on the 76394 signal. It is a real beauty.

regards
Kimball