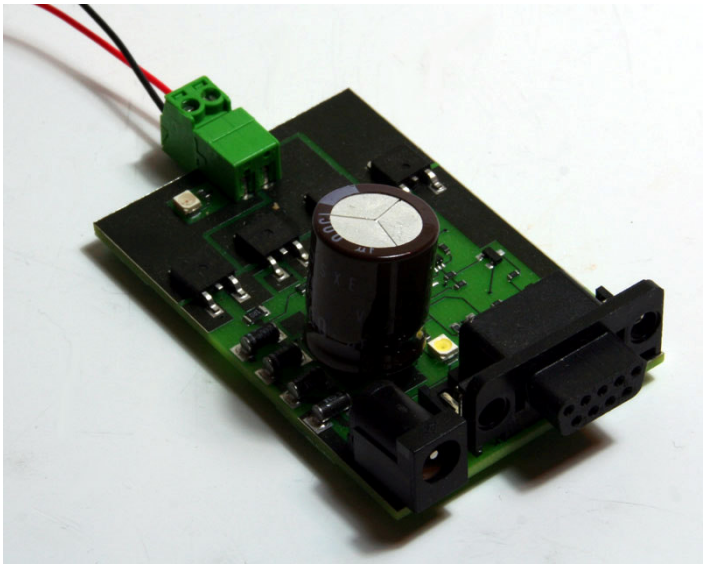
Experiences with the CT Elektronik PC Programmer

This page is intended to share my own experiences and thoughts on the CT Elektronik PC Programmer interface and associated software in relation to programming the SL51-4 sound+motor decoder.

What is the CT Programmer?

Put simply, the CT Programmer is a device which you can attach between your PC and a CT decoder in order to load your own sets of sounds onto that decoder.



Here I will talk specifically about my experiences in programming the SL51-4 decoder using the CT Programmer, but I expect that the information will be largely the same for the equivalent revision SL75 (small version of SL51) and GE80 (sound only) decoders. The revision number of the decoder is very important here, as I know through painful (not to mention expensive) experience that the same setup and software does *not* work with revisions older than '-4'.

The Components

Let us first list out the various components used in this process:

- **SL51-4 decoder** - this may be installed in a loco already (as I normally do - leaving the programming until the physical install is complete), or may be done right up-front, which has the benefit of testing the decoder very early on for potential faults.
- **Speaker** - the CT Programmer documentation is a little confusing on this subject, but I have found that you *DO* need a speaker attached to the decoder in order for the programming to work successfully. During the programming you also get a series of '*beeps*' from the speaker which confirm that the download of data to the decoder is indeed working ok. More on that later.
- **CT Programmer** - this is a small Serial device presented on an exposed circuit board, readily identifiable by a huge capacitor on the top! I'm not sure why CT don't put these things in a nice case, as it doesn't lend itself to seeming like a polished product. Still, it works, and is functional so I guess I should stop complaining and get on with it!
- **Serial-to-PC cable** - sounds obvious, I know, but this little item caused me the biggest problems of all when originally trying to get the programmer to work.

Again, the documentation from CT is incomplete and inaccurate. I could not get a simple serial cable to work at all. So, I tried a serial-to-USB cable (a cheap one from eBay), and that did nothing either. Finally I talked to a very helpful guy via a forum (thanks Alan!) who had apparently got this working himself and found out from him exactly what cable he had used, and so I got the same model: a Belkin F5U103. Now I was rather lucky with this because I found one on Caboodle, but it seems that this model is now discountinued so might be hard to find. I'm sure other cables would work, but beware - it might take some messing about to get there. Also worth noting that during a visit to DCC Supplies, we also established that the Serial-to-USB cable supplied with the LokSound kit works with the CT Programmer too. Basically it needs to be a cable which has the *flow control* line properly implemented.

- **Power supply** - again, this isn't obvious as to what PSU/adapter to use - the documentation is somewhat lacking, and there is a general concern by various people that the programmer is very fussy, and it depends upon the type of decoder being programmed too. Anyway, I didn't find any of these things an issue - a simple 15V DC power adapter works absolutely fine (you can get one for around £10... mine came from DCC Supplies). Perhaps the concerns were with an old version of the programmer, or older decoders.
- **PC** - any PC will do, as long as it can take the cable you've used. Personally I use Windows XP Home, but the software is purely DOS-based, which means it will work with any version of Windows, as long as you can find the Common Prompt!
- **Software** - another very tricky area, bady documented. Each decoder and revision appears to need a different level of the low-level software, and if you use the wrong version it has the potential to fry the decoder! During a trip to DCC Supplies we programmed an SL51-2 with the SL51-4 software, and this just ended in a flash of light and a puff of smoke once we place the loco on the track. There are 3 elements to the software: something called FILLFLASH; a Windows front-end called SoundProg; and a firmware updating program. I'll talk about each of these shortly.
- **Data** - obviously if you want to program a decoder, then you need some data to put onto it! This comprises 3 basic parts: a list of CV settings; a definition of what sounds to load; the sound files themselves. This is often referred to as a *Sound Project*, although I tend to call it a *Sound-Set* because of some differences in the way I put the files together. Please refer to the guide on how to put a Sound-Set together for more information.

Software Elements

As mentioned above, there are essentially 3 software programs available from CT which can be used for the programming of decoders. If you have experienced the LokSound software, then you'll probably be appalled at the CT software, as it is incredibly basic, difficult to use and some of it cannot even be installed on most PCs!
It is worth appreciating that I myself am a software engineer by profession, so I don't mind the low-level stuff too much, but CT's software is certainly *not* designed for your average Joe!
The software is all downloadable from the CT web site (www.tran.at), but you'll need to read German, or get Google to translate it for you. I believe that what is there as I write is all applicable for revision '-4' decoders, but I wouldn't like to guarantee that of course! I'll try to remember to add in details of the exact version of each program below so that you can cross-verify if you try to use a newer or older version. So, let's take a look at the software:

- **FILLFLASH** - this is a low-level program which communicates directly with the CT Programmer, sending it the necessary signals to load the request CVs and sounds into the decoder. There isn't much to it - it takes 3 parameters: name of your CV list file; PC's COM Port where the Programmer is attached; name of your sound-set definition file. When it runs it blurbs out lots of text telling you what it is doing,

showing some of the data being processed. It is not at all user-friendly, but at least you can get some idea that something is happening! FILLFLASH is the tool that I use, and nothing else in fact. I believe that older versions of FILLFLASH had a slightly different name - something like FILLFLSH - but that isn't too relevant now.

- **SoundProg** - this is CT's attempt at a nice GUI/Windows interface where you can build you CV lists and define your sound-sets - choosing which sound files should be used for which effect. You can save your work as a *Sound Project*, which is the term generally used. I deliberately don't call what I do *Projects* because I don't bother with SoundProg - I just call FILLFLASH directly with the names of the CV and Sound definition files. I had great difficulty getting SoundProg to install on my PC at all - the installer just kept complaining about *runtime components*, or something. Various web sites indicated that I needed to temporarily set my PC to German/Austrian settings, do the install, then switch back to English. However, despite trying all that, I never got the installer to complete successfully. However, even with an apparently broken install, it was possible to run the program, which is all in German, and I could never get it to talk to the CT Programmer anyway, so eventually gave up and settled for using FILLFLASH directly instead. Apparently underneath, SoundProg calls FILLFLASH anyway, so technically you are not changing anything - just getting a GUI interface to configure things. One of these days I'll get around to writing my own version of SoundProg, in English, but until then, FILLFLASH it is!
- **UPDATEFL** - this little program is another low-level thing which is used for refreshing the FIRMWARE on the decoder. The FIRMWARE is the software on the decoder itself, stored on FLASH memory, so if CT releases an update which gives you *fixes* or *enhancements* then it is theoretically possible to update the FIRMWARE and start using those updates, rather than having to replace the whole decoder, or send it back to CT. A neat feature in theory, but as yet I've never had to do it as there haven't been any FIRMWARE updates launched by CT for the SL51-4!

Maybe I'm being a bit unfair, but it is incredibly disappointing that *SoundProg* is so difficult to get working! Ultimately I am happy working with text files and Command Prompts, but it would be horrible for anyone without reasonable PC knowledge, or without a decent set of instructions.

Dispelling Myths

There are various *myths* surrounding the CT software and programming setup, voiced on certain web sites and forums, and it is worth squashing a few right now...

- **Software must be on C: drive** - certainly not true of FILLFLASH, which works absolutely fine from any drive. I cannot say for sure about SoundProg, as I only ever put it on C.
- **Software and data files must use 8.3 format** - by this I mean 8 characters for the *name* and 3 characters for the file *extension* e.g. "HELLO.TXT" has a *name* of "HELLO" and an *extension* of "TXT". This does not appear to be true - I have had no problems using files in long-named subdirectories, where the names are much longer than 8 characters, and also in directories which contain *spaces* in their name. However, I suspect this is simply making use of Windows' *current directory* which means it looks for the files in a location relative to where you run FILLFLASH. I run FILLFLASH from the *SAME* directory as where all the associated files are held, so that might be why it works for me. I have not tried to reference sound files which have *spaces* in their names either, so I cannot confirm if that works - there is no real need to anyway. Despite this, I do try to be consistent with my file names and generally do keep them short enough to fit in *8.3* anyway.
- **You must disconnect the speaker from the decoder during programming** - untrue! In fact I've found exactly the opposite - you need to have the speaker connected or the programming doesn't actually work at all. It is also useful to

have the speaker connected as it gives you some positive feedback (beeps) that the process is actually working.

- **You can read data OFF the decoder using the CT Programmer** - no, sorry, you cannot. It is a nice thought, but unfortunately the Programmer is an entirely one-way device. In fact, the Programmer is so dumb that it does not even know if the decoder is attached - it just blindly sends data through its outputs and begins to pray!

Let's See It Work Then!

Enough chat then - let's actually go through an example of doing some programming onto an SL51-4 decoder, so you know how the process goes, and what to expect...

...to be completed soon...