



Doehler & Haass

# FUTURE-CENTRAL-CONTROL (FCC) Operating instructions



## Specifications

### Current supply

7 – 18 Volt AC or 10 – 25 Volt DC

FCC works with every common model railroad transformer, yet we recommend a notebook power supply, because it is stabilized and supplies sufficient power (max. 4.75 A).

**Doehler & Haass** offers for that purpose the specifically tested power supply PWR-100W with a slide switch for voltages from 12 to 24 Volt DC.

### Output current

Continuous output track (thermal shutdown, time constant about 1 sec.)	max. 2.5 A
Continuous output bus (thermal shutdown, time constant about 1 sec.)	max. 1.5 A
Peak current (max. 1 sec.)	max. 6.0 A

### System formats

FCC central unit permits operating of locomotive decoders for following system formats:

System name	Address range	Speed steps	functions
SelecTRIX 1	111	31	1
SelecTRIX 2	9999	127	16
DCC short addresses	127	14	16
DCC short addresses	127	28	16
DCC short addresses	127	126	16
DCC long addresses	9999	14	16
DCC long addresses	9999	28	16
DCC long addresses	9999	126	16
Märklin Motorola old	255	14	0
Märklin Motorola new	255	14	4

103 locomotives can be simultaneously operated with SelecTRIX 1 and also 32 locomotives with any other system formats. Just driving locomotives are counted among the 32 ones.

Converting the system format can take place for instance:

- with D&H FCC-control program (<http://doehler-haass.de> > Produkte > Software > FCC)
- with the ST-Train light program distributed by MTTM
- with TRIX Mobile Station 1 (MS1)
- with “Control handy” (with D&H exchange processor)
- with “Lok-Control 2000” (with D&H exchange processor)

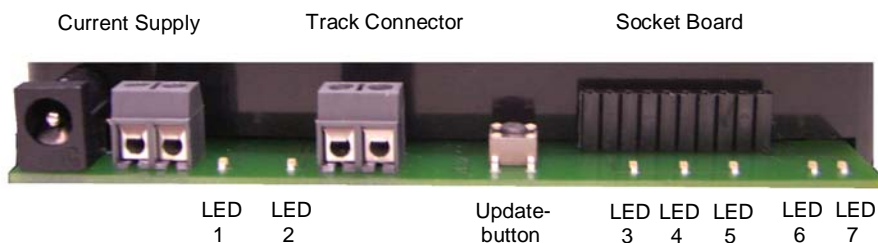
Factory made setting: SelecTRIX 1

## Connections

FCC can be connected with all devices with SX-Bus, as well as with all boosters and power-packs with PX-Bus.

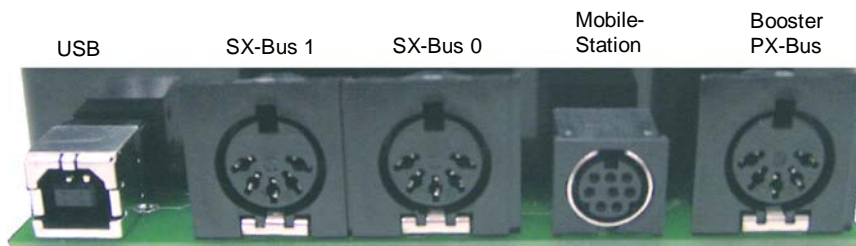
### Front

- Current supply by clips or low voltage socket
- Side track by clips
- Socket board (reserved for assembly only!)



### Back

- USB-socket for computer connection (USB-cable A/B required)
- 5-pin DIN-socket for SX-Bus 1 (for driving, switching und return signal)
- 5-pin DIN-socket for SX-Bus 0 (data signals for track (driving) + switching/return signal)
- 8-pin Mini-DIN-socket for TRIX Mobile Station 1 (connected with SX-Bus 0 and PX-Bus)
- 5-pin DIN-socket for power-bus (PX-Bus for booster)



## Indicators

LED1	Current supply	lights up when supply power is applied
LED2	Track power	lights up when FCC (traction current) is on
LED3	Normal operation	flashes when in normal operation (see page 3 above)
LED4	Update indicator 1	flashes when in normal operation (see page 3 above)
		flashes during decoder-update
LED5	Update indicator 2	lights up when updating (device connected with SX-Bus or FCC)
LED6	Data to PC	flashes during PC-communication
LED7	Data from PC	flashes during PC-communication

## Setting of operating mode "Status-LED"

In the factory made setting FCC indicates SX-Bus-activities (block-refresh rate) by flashing LED3.  
This setting can be changed by writing one of the following values in CV07 by DCC-programming mode:

0	Cutout out, no LED on	
1	Cutout out, bus clock-LED on	LED3
2	Cutout out, track clock-LED on	LED4
3	Cutout out, bus- and track clock-LED on	LED3 + LED4
4	Cutout on, no LED on	
5	Cutout on, bus clock-LED on	LED3
6	Cutout on, track clock-LED on	LED4
7	Cutout on, bus- and track clock-LED on	LED3 + LED4

After DCC-commands a cutout can now optionally be activated. The cutout fits then as well the track port of the FCC as the PX-Bus-port. Many power-packs/booster are also able to pass the cutout from PX-Bus to the track signal.

This enables the connection of specific address displays which for instance display the addresses of driving DCC-locomos with activated bidirectional communication (loco address checkback signal in DCC-service, RailCom®).

Advice:

Programming FCC over CV07 affects no locomotives standing on track!

## Operating element update-button

Push button for updating FCC or D&H-locomotive decoders

## Programs for FCC

To operate FCC comfortably by PC, D&H has developed a control program with following options:

- Programming of locomotive decoders, controlling any number of locos, function output on bus
- Program for updating all D&H developed devices and locomotive decoders (except sound modules).

Programs are downloaded as ZIP-files from D&H-website - unzipped files are copied in any directory.  
Programs are available after connecting FCC to PC by a USB-cable.

## FCC control programs

FCC-control program is available for download, click on:

<http://doehler-haass.de> > *Produkte* > *Software* > *FCC*

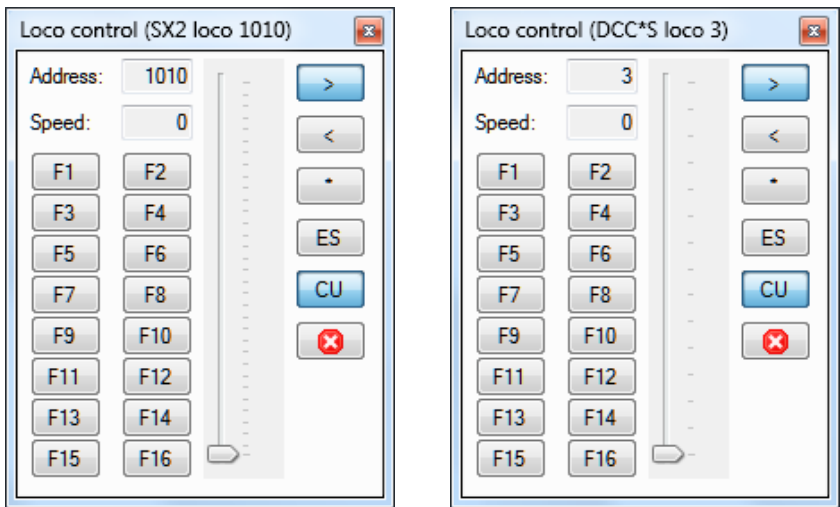
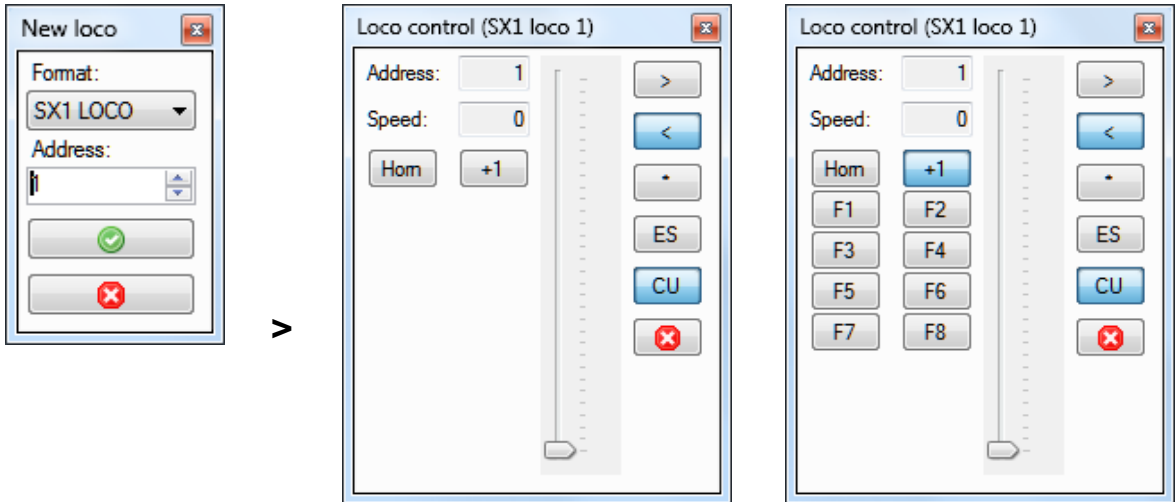
After extracting the ZIP-file the system format is chosen by clicking on:

*File* > *Format SX1* (continuing circuit in a loop):

*/ only SX1 / SX1 + SX2 / SX\* DCC / DCC / SX\* MM / MM / SX\* DCC\* MM / only SX1 /... (etc.)*

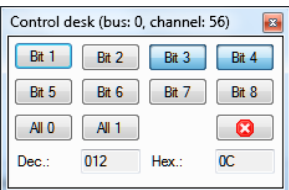
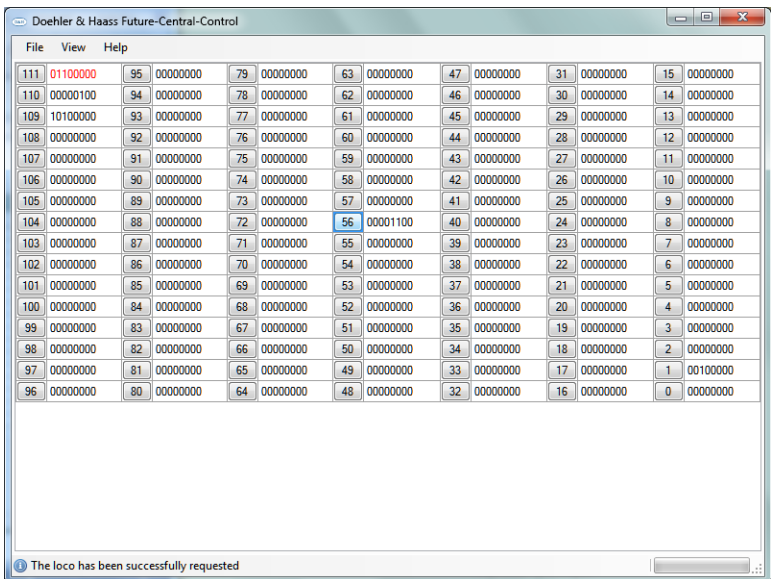
Controlling one or several locomotives is carried out by:

*View* > *New loco* > *Selecting system format and loco address* > *OKAY*



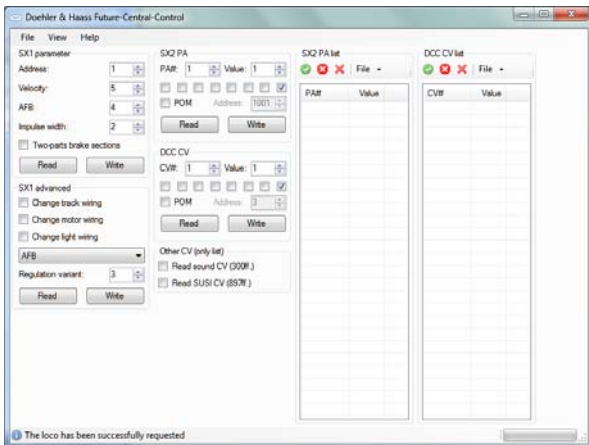
Data for just one locomotive can be entered. The system format of the locomotive has to match the central unit's system format. Otherwise you get the advice: "System error: The loco could not have been requested because already 32 locos have been requested."

Functions at control bus SX-Bus 0 or additional bus SX-Bus 1 are called by:  
*View > SX-BUS 0 > Double-click requested address.*



## Locomotive decoder - programming

Programming is carried out by: *View > Loco decoder programming*



Decoder can be programmed in system formats SX1 / SX2 / DCC.

System formats SX2 and DCC offer the option to readout all parameter/CVs in one single operation, by clicking the green hook. After readout values can be listed under *\*\*\*-List – File / or save*. They can also be backed up and loaded again.

## Update options

### Updating FCC

We generally recommend internet-download. In case of model railroad-PC is not connected with the internet, it is possible to use another PC for backing up the update-file from the internet on a USB flash drive. Now the file can be opened with the command *open file*.

The update-program can be downloaded under:  
*http://doehler-haass.de > Produkte > Software > Update*

After extracting the zip-file selection can be made over: *Digital system / Devices > Future-Central-Control*



After the file has been loaded FCC will be switched from normal mode to update mode by pushing the update-button for approximately 1.5 sec. Updating starts automatically and lasts about 3 sec.

## Updating other devices

With the update-program by using FCC can presently be updated following D&H developed digital system devices up to the latest software version:

- X2X-Box
- Belegtmelder
- Funktionsdecoder
- TRIX Mobile Station 1 (MS1)

How to set the chosen device into update-mode you can learn from the appropriate device instruction manual.

## Updating locomotive decoder

Decoder capable for update: DHxx, DHPxxx und FHxx  
Decoder not capable for update: DHFxxx, DHLxxx und DHSxxx

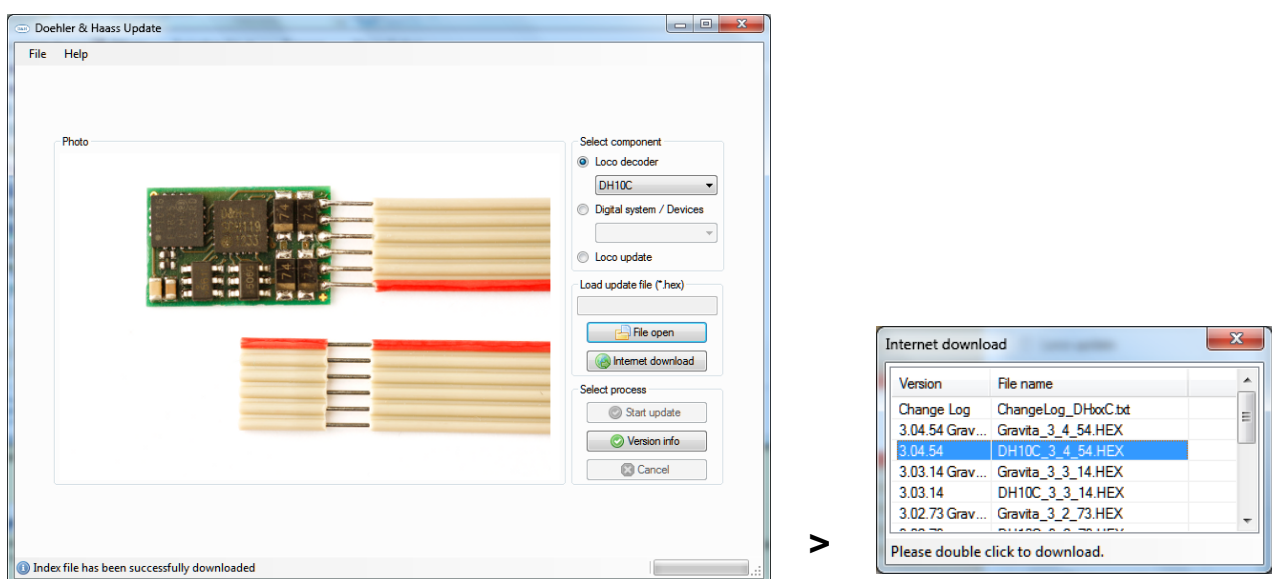
### Advice:

If the decoder is equipped with a buffering, it could happen that updating does not work. That depends on the type of the decoder, on the buffering and on the connection mode. In case of doubt it is advisable to remove buffering before updating.

Updating will be initiated by: *Loco decoder > Select decoder (e.g. DH10C) > Internet-download > Select xx.HEX > Double-click*

File is now saved in FCC and can be used over and over also without PC. Use now the update-button until LED4 lights permanently. Updating starts automatically.

Loading decoder software backed up in FCC in another decoder without PC, program mode has to be called at first by a manual control unit, before update-button will be activated!



**Keep operating instruction for later use!**


**For this item we grant two years warranty.**


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	This product must not be disposed at the end of its service life in normal household waste. Please use the recycling depot of your community.
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	Nicht geeignet für Kinder unter 14 Jahren. Not suitable for children under 14 years. Ne convient pas aux enfants en dessous de 14 ans.
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