

# 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-locos 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.

Doehler & Haass Future-Central-Control													
File	View	Help											
111	01100000	95	00000000	79	00000000	63	00000000	47	0000000	31	00000000	15	0000000
110	00000100	94	0000000	78	00000000	62	00000000	46	0000000	30	00000000	14	0000000
109	10100000	93	00000000	77	00000000	61	00000000	45	0000000	29	00000000	13	0000000
108	00000000	92	00000000	76	00000000	60	00000000	44	0000000	28	00000000	12	0000000
107	0000000	91	00000000	75	00000000	59	00000000	43	0000000	27	00000000	11	0000000
106	0000000	90	00000000	74	00000000	58	00000000	42	0000000	26	00000000	10	0000000
105	0000000	89	00000000	73	00000000	57	00000000	41	0000000	25	00000000	9	0000000
104	00000000	88	00000000	72	00000000	56	00001100	40	0000000	24	00000000	8	0000000
103	0000000	87	00000000	71	00000000	55	00000000	39	0000000	23	00000000	7	0000000
102	0000000	86	00000000	70	00000000	54	00000000	38	0000000	22	00000000	6	0000000
101	00000000	85	00000000	69	00000000	53	00000000	37	0000000	21	00000000	5	0000000
100	00000000	84	00000000	68	00000000	52	00000000	36	0000000	20	00000000	4	0000000
99	00000000	83	00000000	67	00000000	51	00000000	35	0000000	19	00000000	3	0000000
98	00000000	82	00000000	66	00000000	50	00000000	34	0000000	18	00000000	2	0000000
97	00000000	81	00000000	65	00000000	49	00000000	33	0000000	17	00000000	1	00100000
96	0000000	80	00000000	64	00000000	48	00000000	32	0000000	16	00000000	0	0000000
D The	e loco has b	een succ	essfully reque	sted									

Bit 3 Bit 7	Bit 4 Bit 8
Bit 7	Bit 8
lex.:	0C
	lex.:

# Locomotive decoder - programming

Programming is carried out by: View > Loco decoder programming

File View He	elp					
SX1 parameter		SX2 PA	SX2 PA list		DCC CV lat	
Address	1 🔤	PA#: 1 💠 Value: 1 💠	0 0 X	File -	O O X	File -
Velocity:	5 🔅	DEEEEEEE	PAH	Value	CV#	Value
AFE	4	POM Address 1001				
Impulse width	2 0	Read Wite	_			
Two-parts brake	sections	2000 001				
Read	Wite	CVW: 1 O Value: 1 O				
SX1 advanced Change track with Change motor with Change light with	ning Ing ng	POM Address 3 12				
AFB	•	Other CV (prily list)				
Regulation variant	3 🔅 Wite	Read SUSI CV (8978.)				

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!

💿 Doehler & Haass Update		
File Help		
Photo	Select component	
	File open	Internet download
	Select process	Change Log ChangeLog_DHxxC.bt
	Cancel	3.04.54 DH10C_3_4_54.HEX 3.03.14 Grav Gravita_3_3_14.HEX
		3.03.14 DH10C_3_3_14.HEX 3.02.73 Grav Gravita_3_2_2_73.HEX
Index file has been successfully downloaded		Please double click to download.

## Keep operating instruction for later use!

# For this item we grant two years warranty.

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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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