

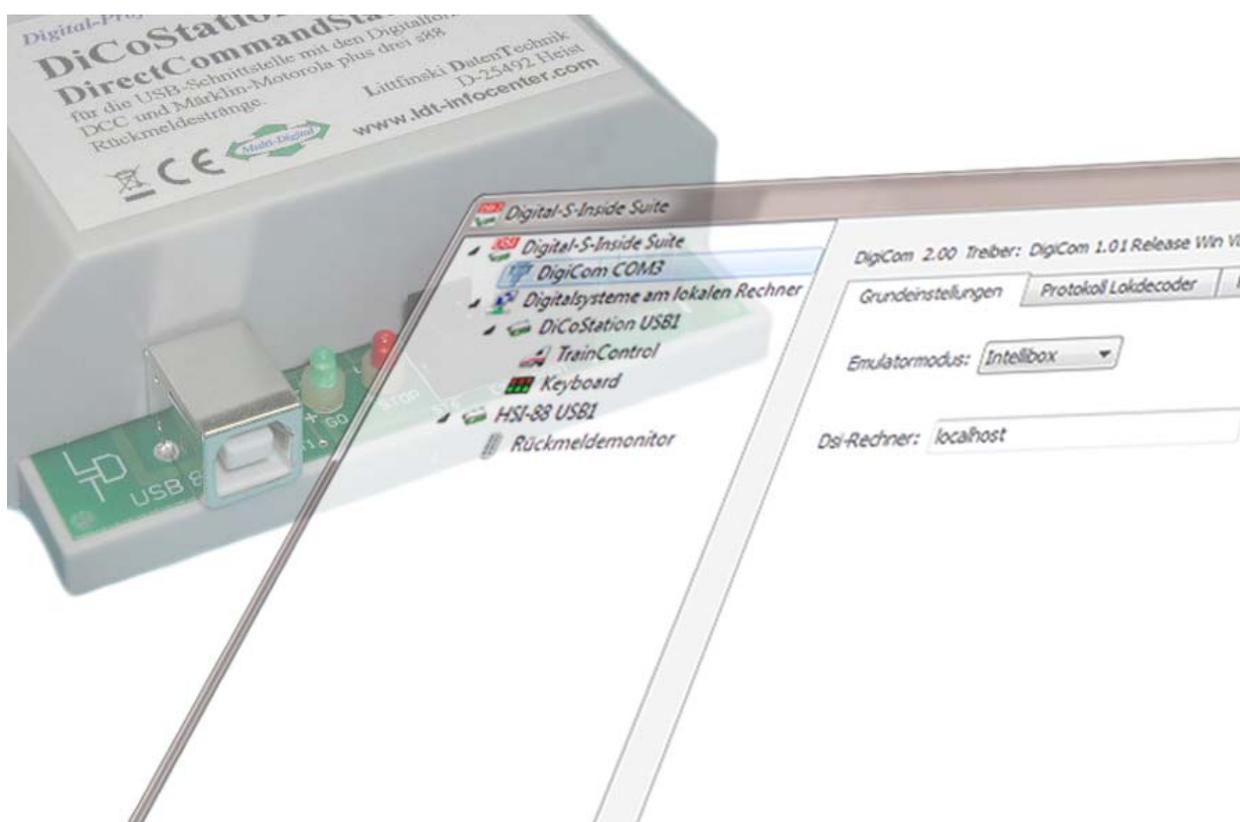
DIGITAL-S-INSIDE

2

 **Falkner** everytime up-to-date

Version 2.11

18.12.2015



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1. Preface - What is Digital-S-Inside?

Thank you very much for your decision to purchase the Digital-S-Inside.

Digital-S-Inside (following called DSI) is a software which revalues your DiCoStation to a full-functional digital command station for your digital model railway layout.

For using the DSI you need necessarily a DiCoStation.

For the control of locomotives and switching magnetic accessories for an automatic driving operation is in addition a track image control program e.g. Windigipet required. For a functional test you can use the enclosed Suite for testing the Locomotive- and Switch-Decoder.

This manual will describe only the Software Digital-S-Inside. The connection of the DiCoStation respectively HSI-88 USB as well as the related transformer and booster is not subject of this manual. The respective instruction will be supplied together with the units.

2. Installation

DSI can be downloaded from the Internet site www.modellplan.de and tested free of charge.

For a continual operation you will have to purchase an activation code for each DiCoStation. You can purchase the activation codes by www.modellplan.de.

Dsi of version 2 can be installed parallel to an existing Dsi version 1. An existing configuration will not be taken over.

2.1. System Requirements

For DSI is a Windows-PC required. The following Window versions will be supported:

Windows 10, 32 & 64 Bit

Windows 8 / 8.1, 32 & 64 Bit

Windows 7, 32 & 64 Bit

Windows Vista from Service Pack 2, 32 & 64 Bit

Windows XP from Service Pack 3

A graphic board with a minimum of 16 Bit color depth is recommended.

For connecting the DiCoStation respectively the HSI-88 USB you require an available USB-Port with a version 1.1. or higher.

2.2. Setup

The supply consists of an installation file “Dsi-2_xx_Setup.exe” which can be downloaded or found on your CD. „xx“ indicates the actual number of version.

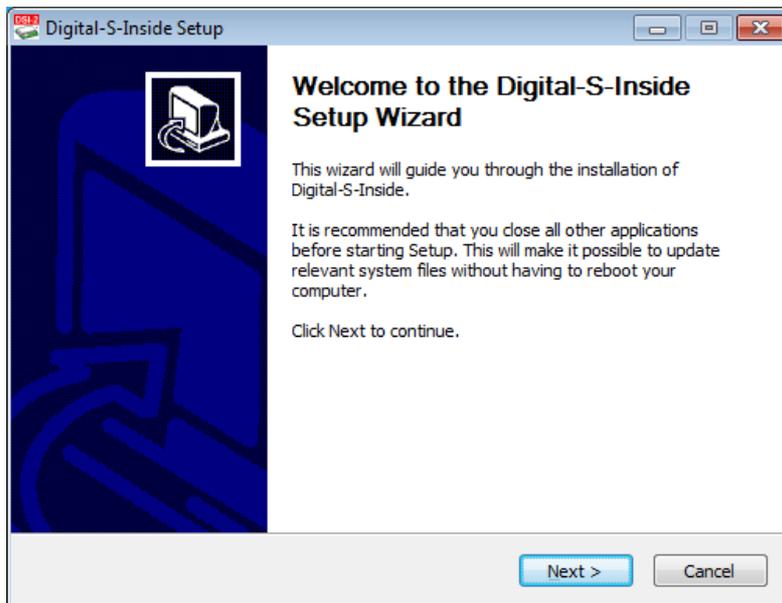
The installation will start after a double click onto the installation file. Follow the installation assistant.

Under Windows 10, 8 / 8.1, 7 and Vista it is eventually required to allow the installation program a feedback to the program of your computer.

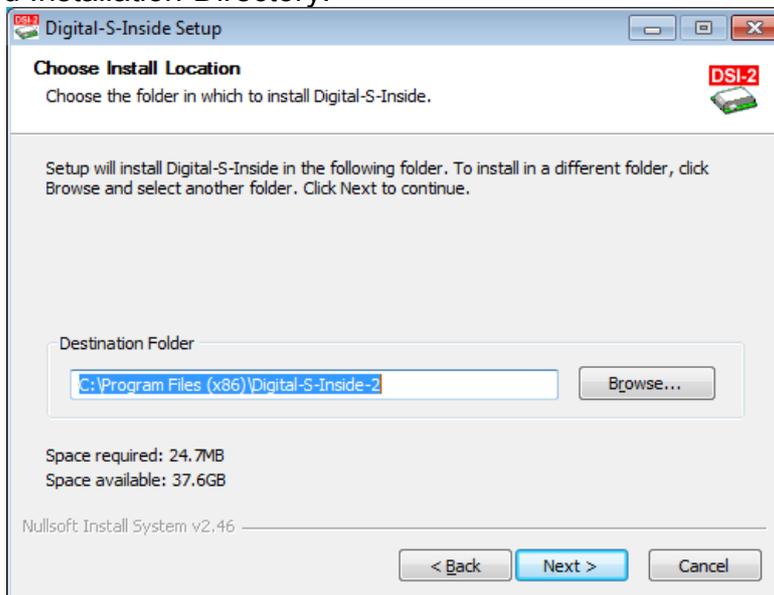


Select the required language for the Assistant:

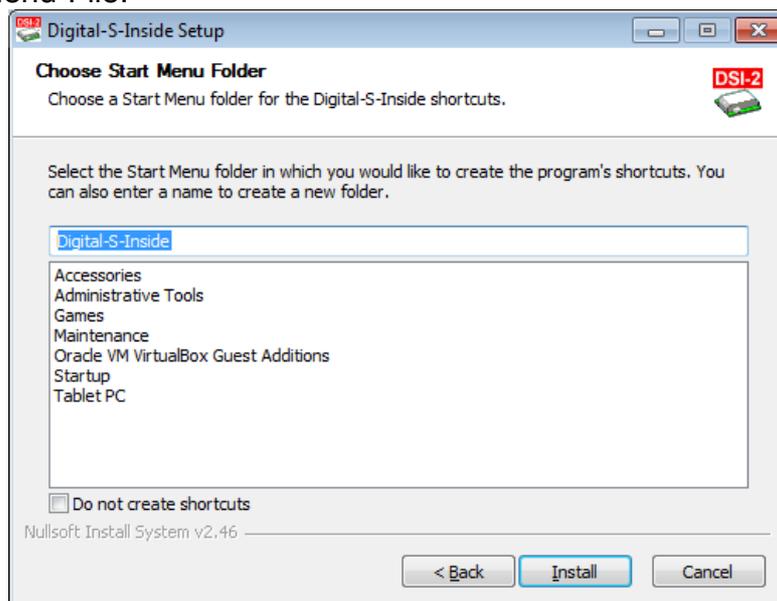
The assistant will guide you through the installation:



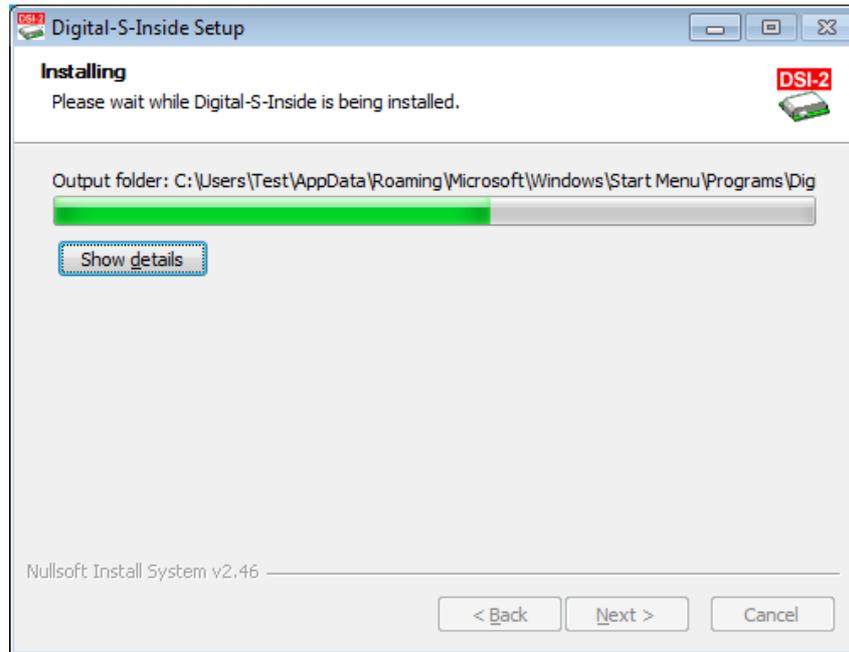
Select the required Installation-Directory:



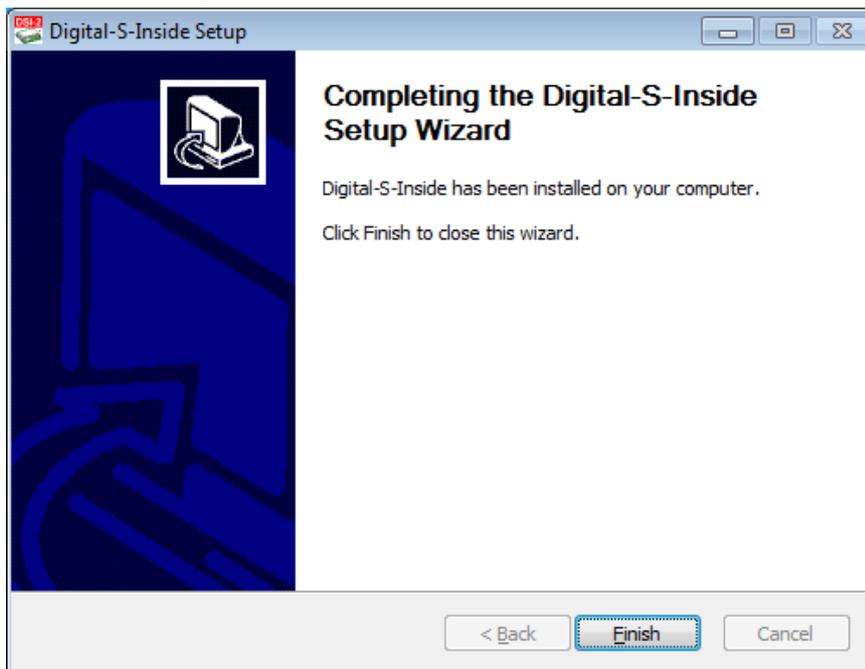
Select the start Menu-File:



The software will now be installed:



The installation is now completed:



You can start DSI via the DSI-2 Symbol on the desktop:

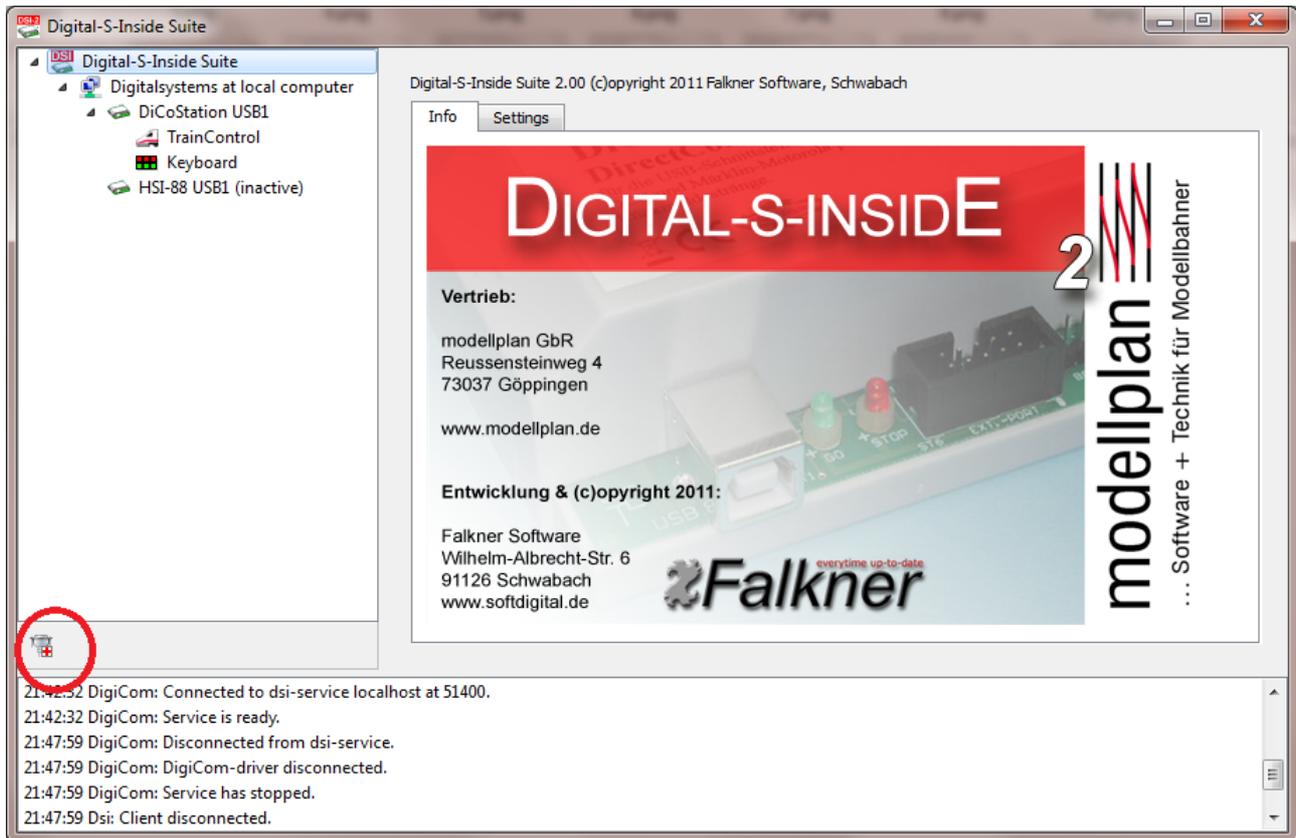


If your control program does not directly support DSI-2 you have to install DigiCom (see 2.3.).

2.3. DigiCom Installation

DigiCom is a virtual serial interface for the connection of control programs which do not support the DSI directly. If your control program supports the DSI-2 directly it is not required to install the DigiCom.

For the installation please mark at the left window the upper entry “Digital-S-Inside Suite”. Now click onto the connection symbol with the red plus:



Follow now the advice of the assistant.

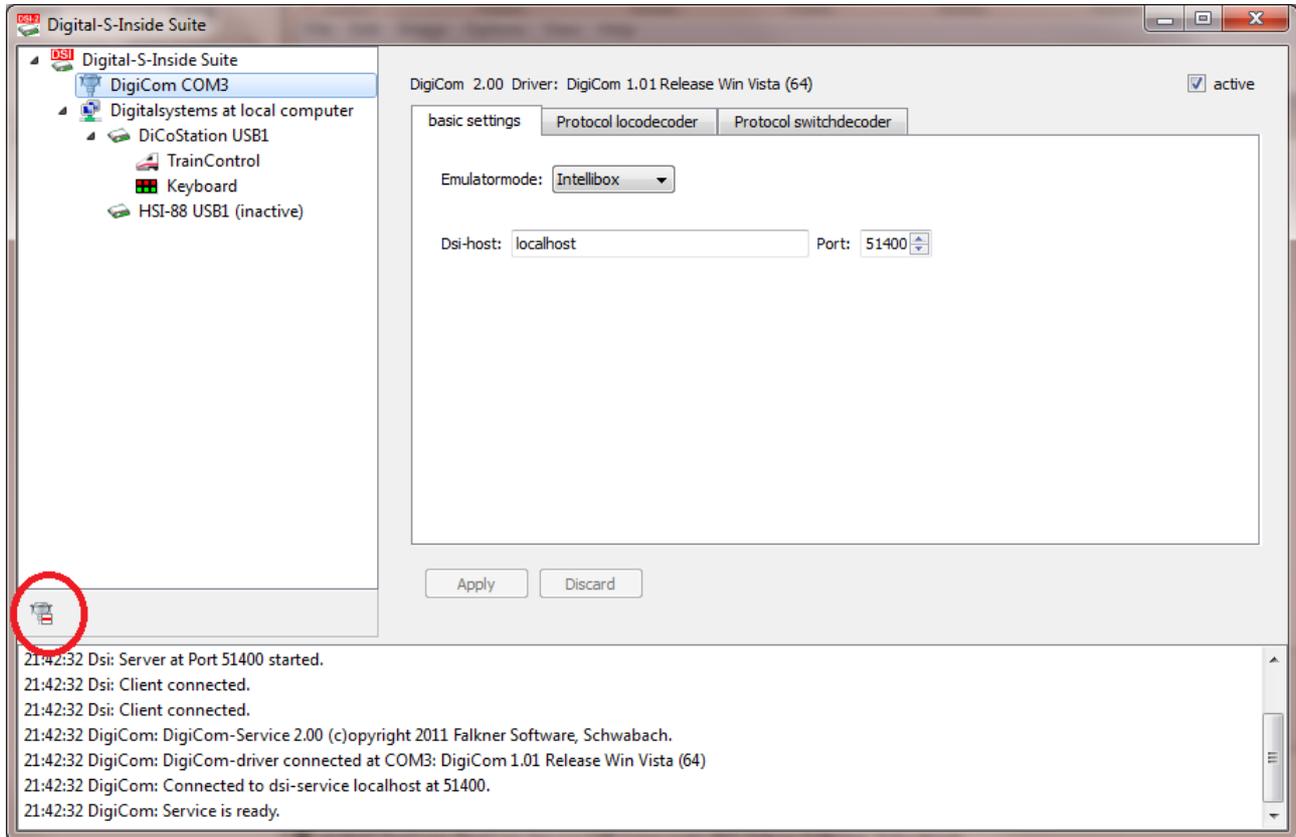
After successful installation you will find at the left selection-window the entry “DigiCom” followed by a COM Connection Number e.g.COM3.



You have to configure this Connection Number at your control-program for the connection to the DSI.

2.4. DigiCom Uninstallation

For uninstalling please mark at the left selection window the entry “DigiCom”.
Now click onto the connection symbol with the red minus:



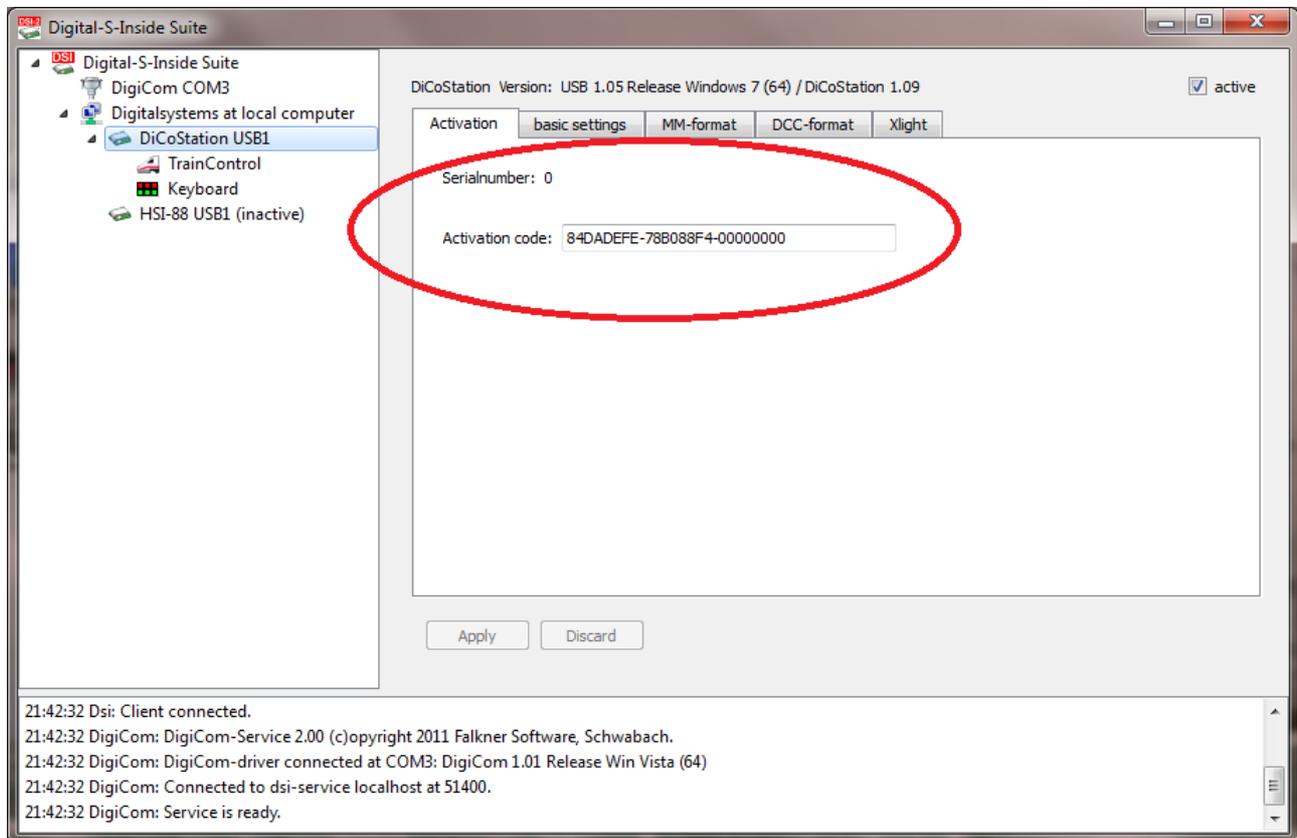
The entry “DigiCom” at the election window will disappear after the uninstallation.

2.5. Activating the DiCoStation

DSI will extend your DiCoStation to a full functional digital command station.

Each unit contains a definite serial number (at the picture: dummy no. 0).

For the continue operation you have to purchase for each DiCoStation an activation code which is available by www.modellplan.de.



Without a valid activation code the operation of the DiCoStation will be running in demo-mode.

2.6. Demo Mode

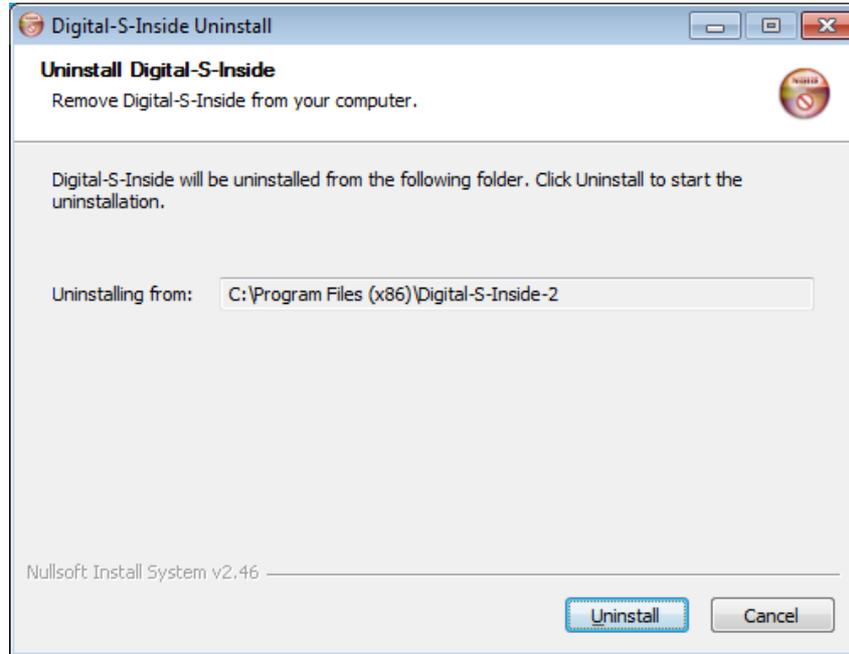
Within the demo mode is it possible to test the DSI. The track voltage can be switched-on for max. 5 Minutes. The time is running after first switching-on of the track voltage. After this duration the track voltage will be automatically switched-off. For each additional test you have to start DSI again.

2.7. Uninstallation

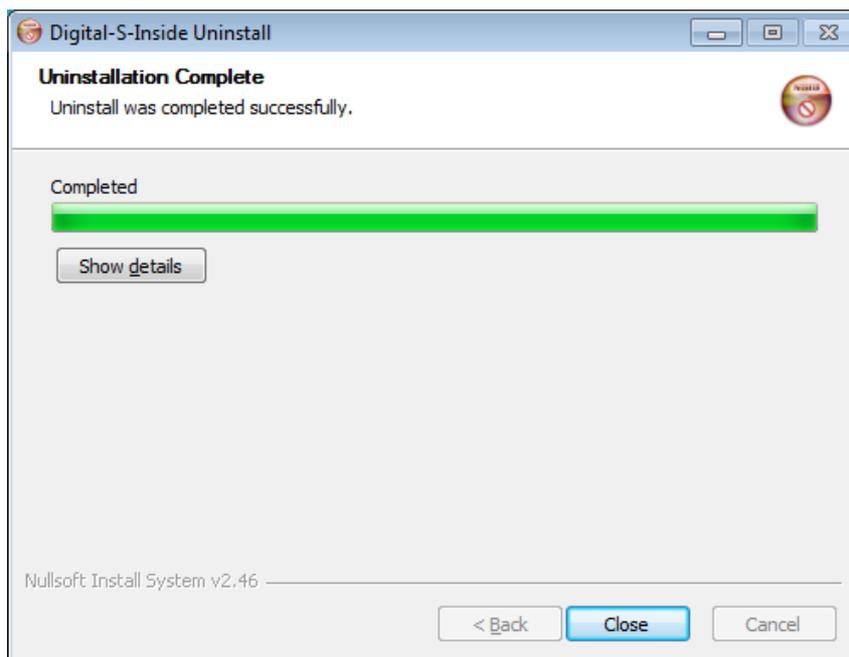
If you have DigiCom installed please uninstall this program first.

At the start-menu you will find under “All Programs → Digital-S-Inside” the option “Uninstall Digital-S-Inside”.

With this assistant you can uninstall the DSI:



The uninstallation has been completed:



3. The Digital-S-Inside Suite

The Suite is able to configure the DSI and to test the decoders and feedback modules.

The Suite is divided into three window sections. At the left area is a selection window with a hierarchic structure where the components to be configured can to be selected (e.g. DigiCom, HSI-88 etc.).

At the right window area you can see the related configuration window.

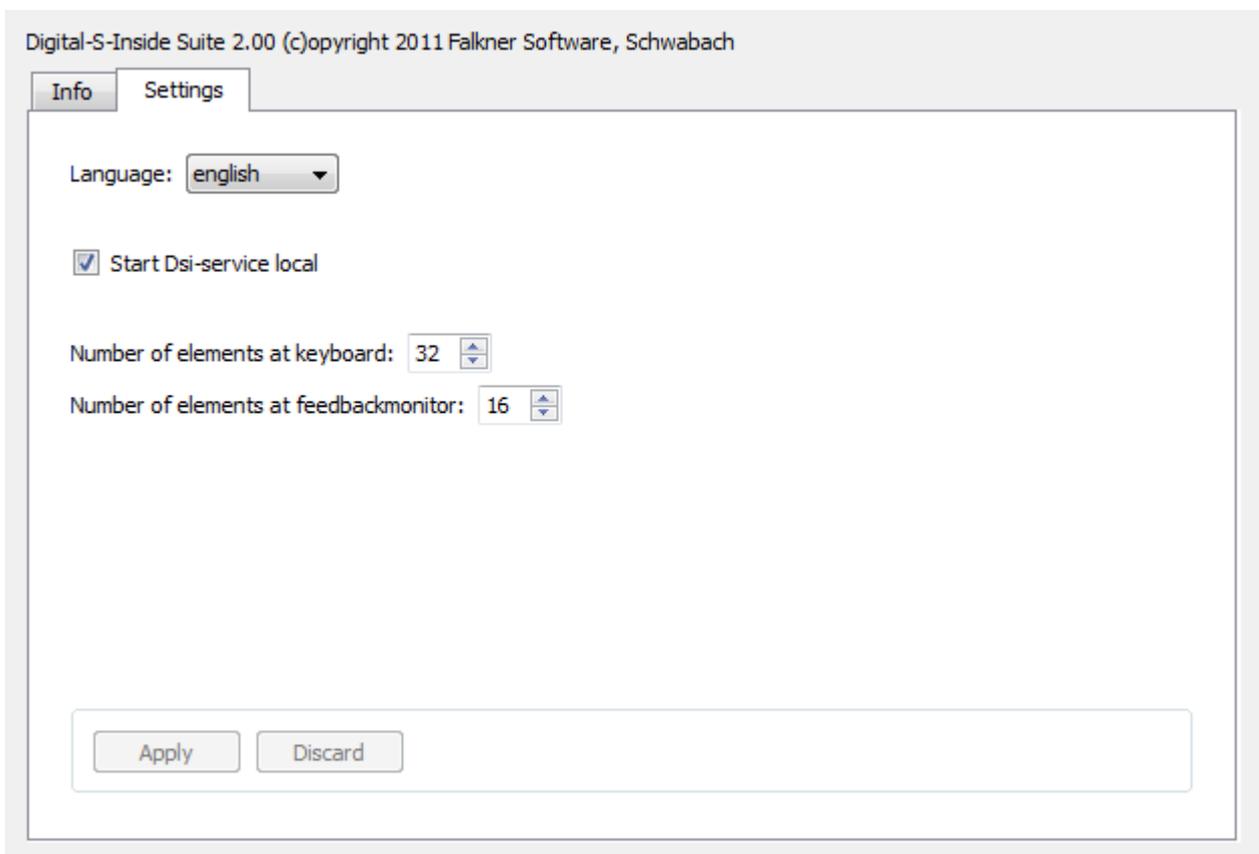
Some of those configuration windows are separated with several file-flags for getting a better overview.

The lower window area contains the report window.

This window reports the status- and the failure report of the system.

Reference reports will be indicated in black color, warning indication in blue and error messages will be red.

3. a) The Digital-S-Inside Suite – Settings



Language: The language of Suite is as standard according to the language selected at the Windows setting of the PC. Presently will be the German and the English language supported. You can select here one of the two languages.

Dsi-Service local starting: Here you can adjust if the Dsi-Service of your local PC shall be started together with Suite. The Dsi-Service should run on the PC which is connected to the model railway hardware which shall be used via Dsi.

Number of elements at the keyboard: Here you can enter the quantity of magnetic accessories switching buttons to be indicated at one keyboard side of the digital system.

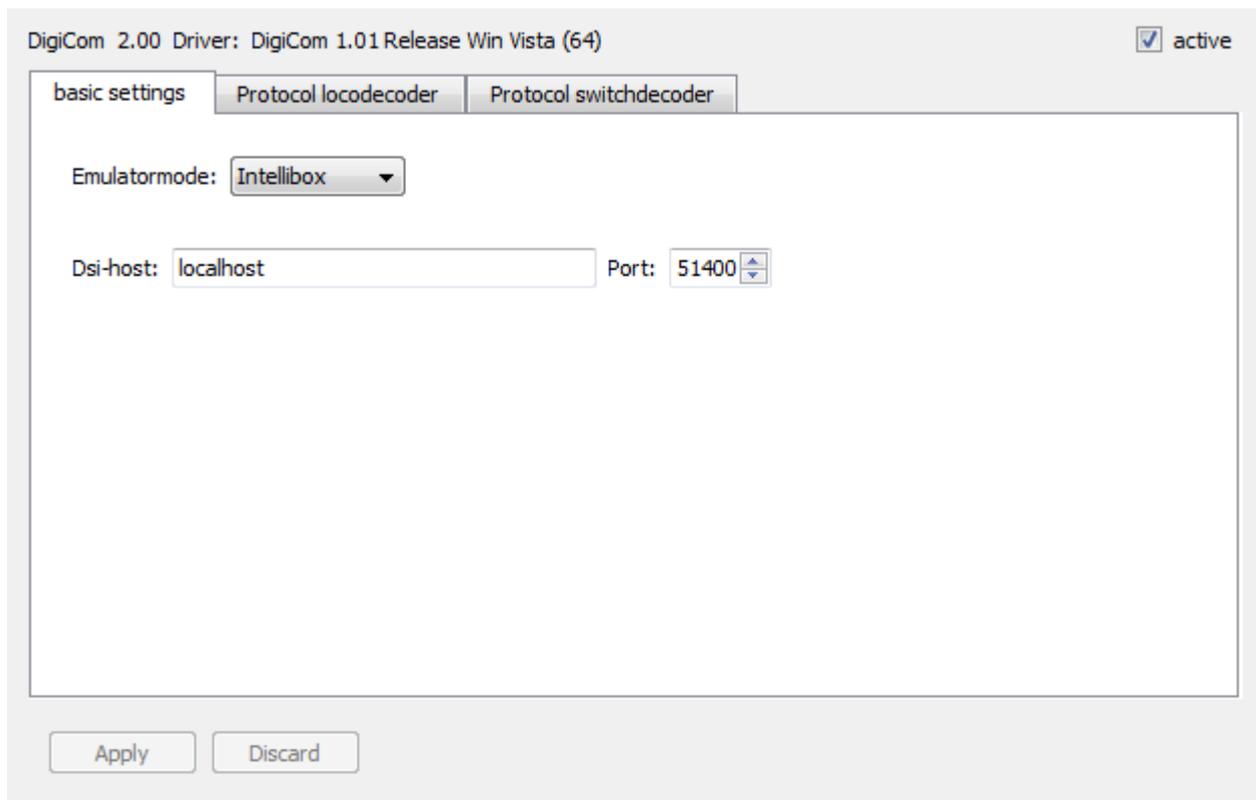
Quantity of elements within the feedback monitor: Here you can enter the quantity of feedback elements which shall be indicated on one side of the feedback monitor of a digital system.

3.1. DigiCom

DigiCom is a virtual serial interface for the connection of control programs which do not support DSI direct. This entry at the selection window will turn up only if DigiCom has been installed. The port number (COM) indicates the serial interface on which DSI can be contacted by the control program.

3.1. a) DigiCom – Basic Settings

At the upper rim of the configuration page you can find the actual version of your DigiCom and the related driver. On the right side you can activate or deactivate DigiCom.

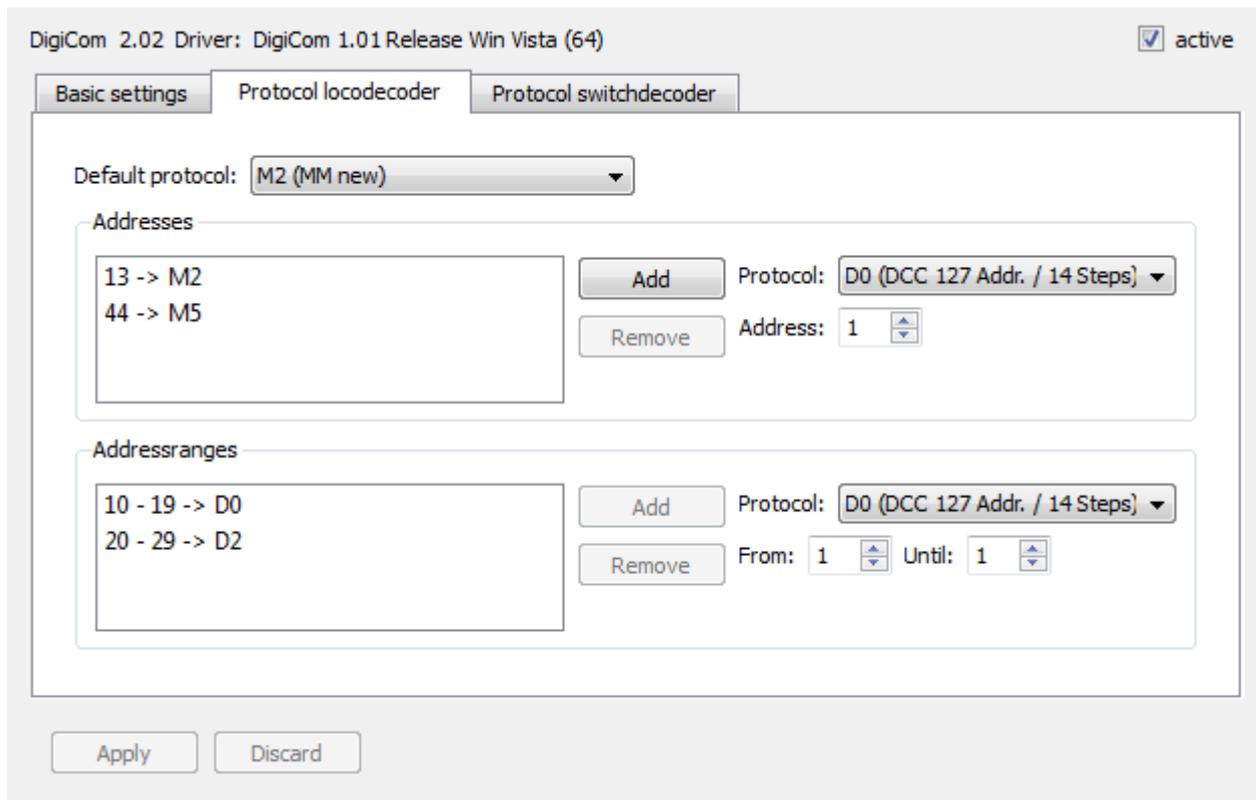


Emulator mode: DigiCom simulates an Intellibox or a Märklin-Interface 6051. Please enter which command station your control program supports. If both will be supported you should prefer the Intellibox.

Dsi-Host: For the control of the layout DigiCom uses the Dsi-Service of the indicated computer. As standard will this be the Dsi-Service of the local computer.

3.1. b) DigiCom – Protocol Locodecoder

The protocol of the central unit which is simulating DigiCom does not contain any information about the protocol (MM/DCC) of the loco-decoder to be contacted. On this configuration site you can adjust to which decoder-protocol the locomotive shall respond. You can find detailed information about the protocols at the section: "Technical Information".



Default protocol: Here you can enter which protocol shall be used if no single address or address range has been indicated or applied.

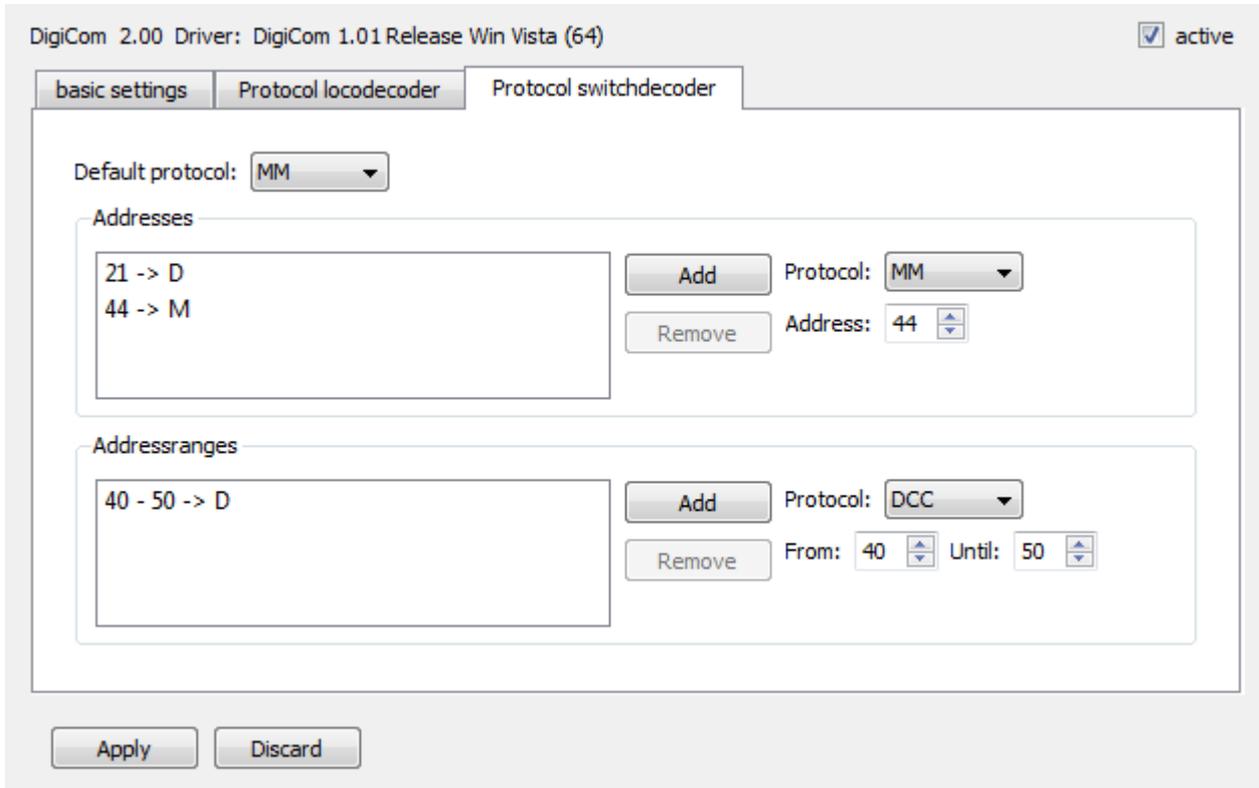
Addresses: Here you can assign a single loc-address to a particular decoder protocol.

Address ranges: Here you can assign a total range of loc-addresses to a particular decoder protocol.

At the above screenshot will be the protocol M2 used as a standard. The locomotive with the address 13 will respond to M2 and the locomotive with address 44 will respond to M5. All locs of 10 to 19 are using D0 and 20 to 29 are using D2 as decoder protocol.

3.1. c) DigiCom – Protocol Switch-Decoder

The protocol of the central unit which is simulating DigiCom does not contain any information about the protocol (MM/DCC) of the switch-decoder to be contacted. On this configuration site you can adjust to which decoder-protocol the magnetic accessories shall respond. You can find detailed information about the protocols at the section: "Technical Information".



Default protocol: Here you can enter which protocol shall be used if no single address or address range has been indicated or responded.

Addresses: Here you can assign a single magnetic accessory address to a particular decoder protocol.

Address ranges: Here you can assign a total range of magnetic accessory addresses to a particular decoder protocol.

At the above screenshot will be the protocol MM used as a standard. The magnetic accessory with the address 21 will respond to DCC and the magnetic accessory with address 44 will respond to MM. All magnetic accessories of 40 to 50 are using DCC as decoder protocol.

3.2. Digital System

Under this entry will be all digital systems indicated at a hierarchic order which have been found by the system. This can be e.g. one or several DiCoStations or HSI-88.

3.2. a) Digital Systems at a Local- or Network-Computer



Dsi-service: Digital-S-Inside 2.00 active

Connection

Dsi-host: localhost Port: 51400

Apply Discard

Dsi-Service: Here will be the version of the Dsi-Service indicated which is connected to the Suite.

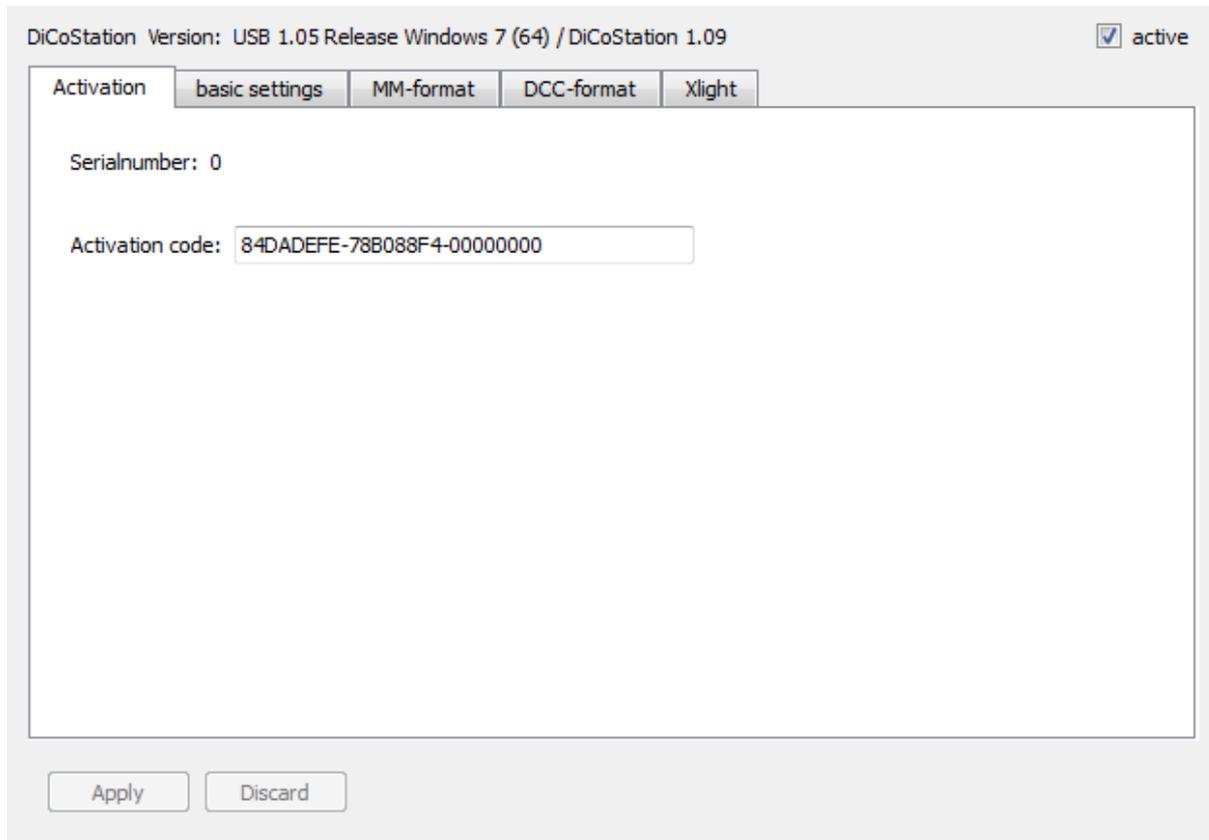
active: Here you can activate or deactivate the connection to the Dsi-Service.

Dsi-Host: Here you can enter with which Dsi-Service on which computer Suite shall be connected for the control of the digital systems. At standard this will be the Dsi-Service of the local computer.

3.2.1. DiCoStation

Here you can find the configuration of the DiCoStation.

3.2.1. a) DiCoStation - Activation

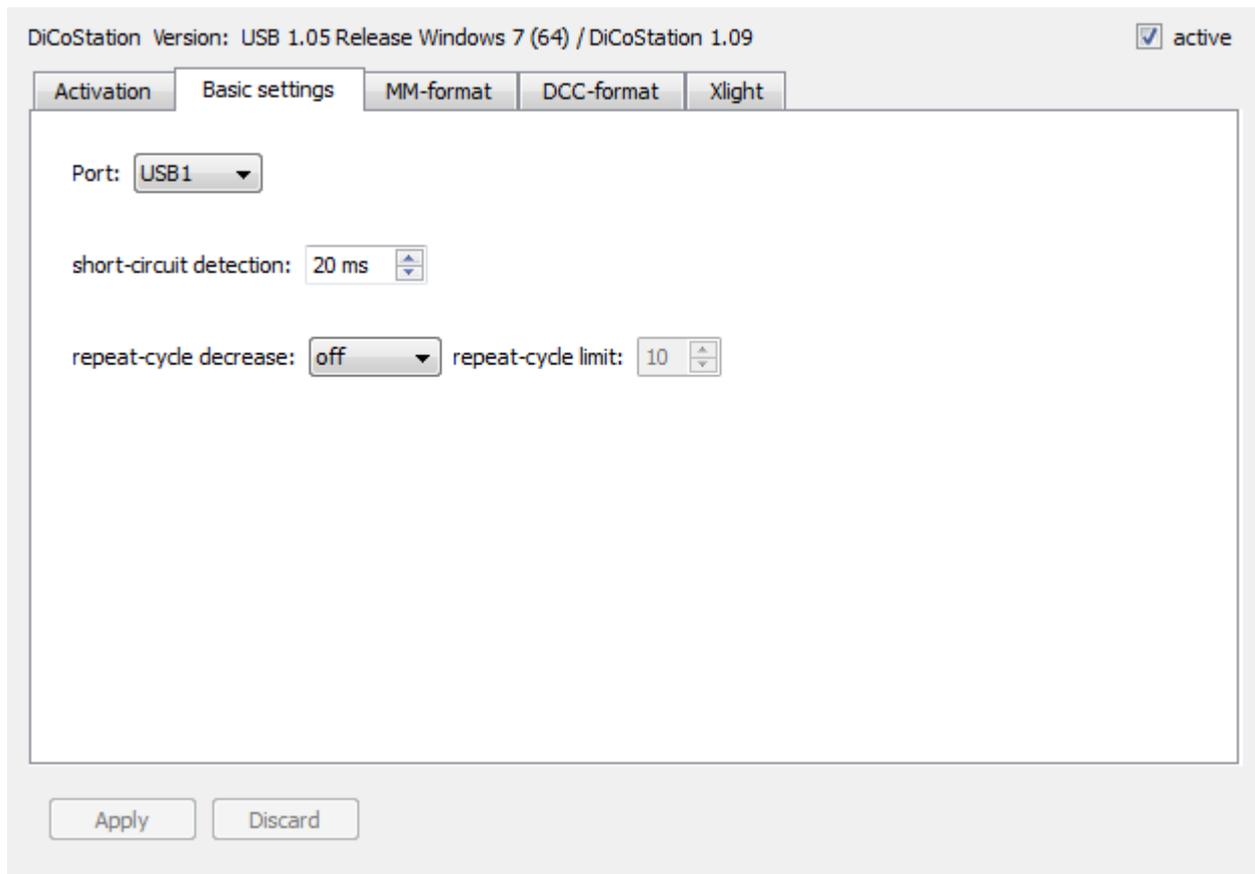


active: Here you can activate or deactivate the DiCoStation.

Serial number: Each DiCoStation has an individual explicit serial number. This number will be here indicated.

Activation code: For permanent operation you will have to buy an activation code for each DiCoStation. This code can be purchased by www.modellplan.de. The activation code shall be entered here. The DiCoStation will run in demonstration mode without valid activation code.

3.2.1. b) DiCoStation – Basic Settings



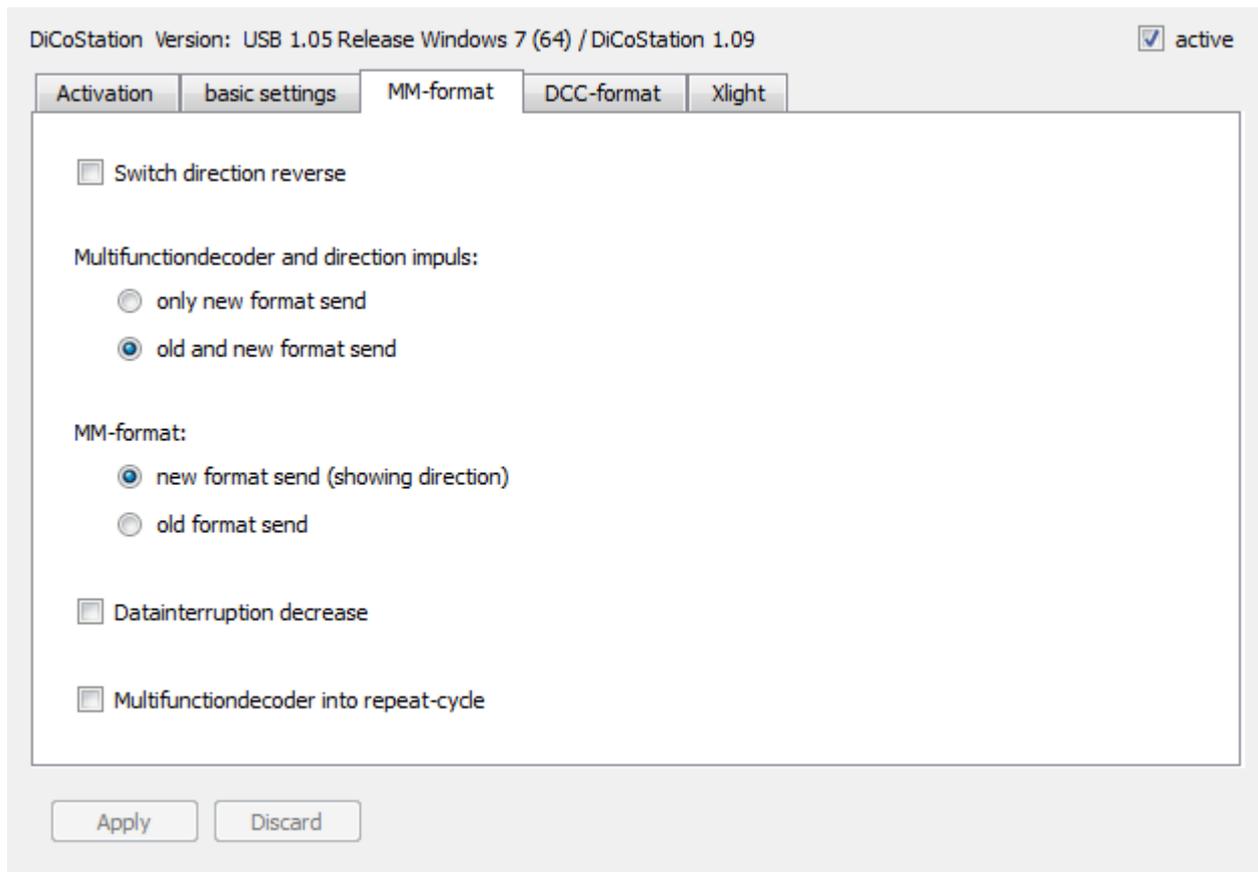
Port: Each DiCoStation will create an own ongoing port number by connection to the USB. This procedure will assure that the correct DiCoStation will be contacted if temporary not all DiCoStation are connected. If only one DiCoStation is connected this station has the number USB1.

Short Circuit Detection: Here you can enter the milliseconds between detection of a short circuit and the switching-off of the track voltage

Repeat Cycle Decrease: The DiCoStation sends permanently repeated decoder-commands of all contacted loc-decoders onto the track. Dsi is able to send the repeated commands as shortcut for a faster contact to all locomotives. This is eventually not compatible.

Repeat Cycle Limit: By dynamic shortening will be the repeated cycle automatically shortened if the entered quantity of loc-decoder has been contacted.

3.2.1. c) DiCoStation – MM-Format



Switching direction reversing: Reverse the switching direction of all magnetic accessories.

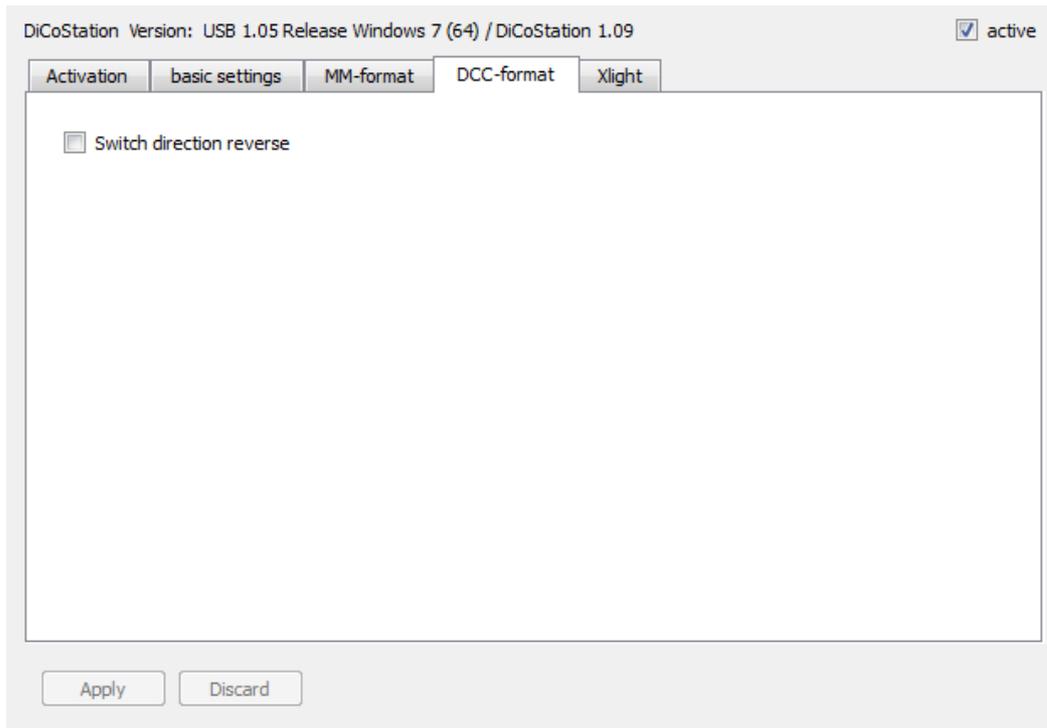
Multifunction decoder and direction impulse: Here you can adjust if the DiCoStation shall send the new Motorola format without drive direction impulse or as well the old format with drive direction impulse. This mixed operation is as well important for old Multifunction-Decoder. This complies to the Dip-Switch 1 of the Märklin 6021.

MM-Format: Here you can adjust if the DiCoStation shall send the old Motorola-Format M1 without drive direction information or the new Format M2 and bigger. This complies to Dip-Switch 2 of the Märklin 6021.

Data interruption decrease: This is only required for the new Motorola-Format. The digital packages will be faster transmitted. This is not compatible to the chips of older decoder (before 701.13, e.g. LME03 – LME=Lenz Märklin Electronics). This complies to Dip-Switch 3 of the Märklin 6021.

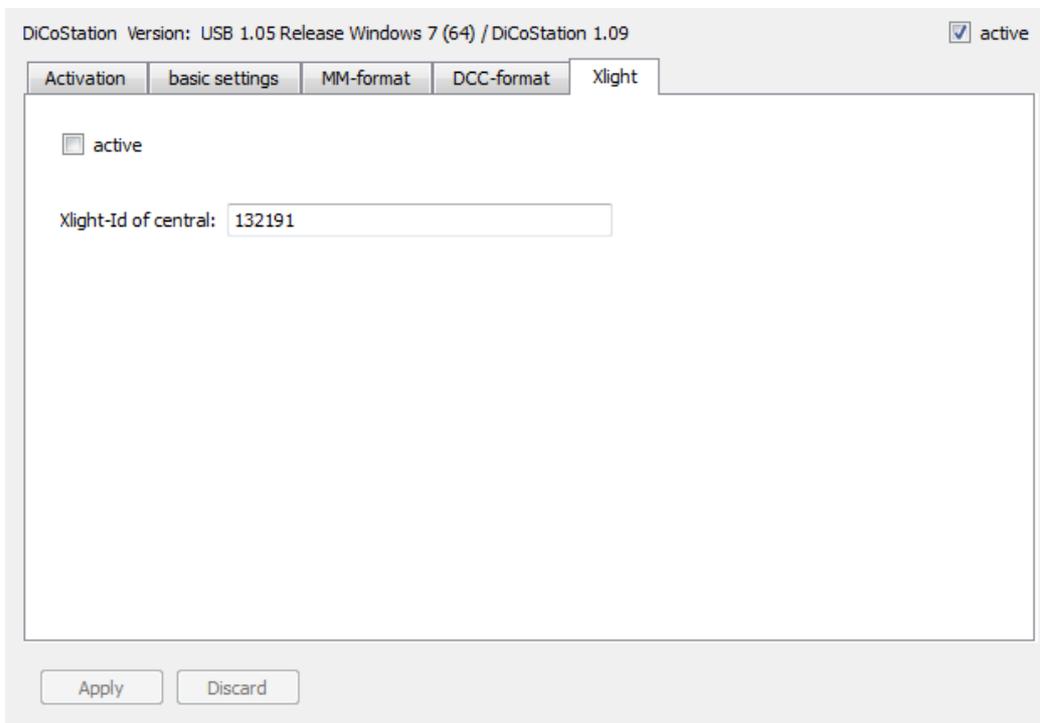
Multifunction-Decoder into repeat-cycle: This is a Dsi-Extension to include switch information of a Multifunctional-Decoder within the repeat-cycle. This provides several special functions e.g. the coach illumination will remain switched-on even after the wagon has lost temporarily contact to the rail. Unfortunately some Switch-Decoder do not accept the programming. Therefore is this option switched-off as standard setting.

3.2.1. d) DiCoStation – DCC-Format



Switch direction reversing: Reversing the switch direction of all magnetic accessories.

3.2.1. e) DiCoStation – Xlight



active: Xlight activation or deactivation. If Xlight has been switched-on all mfx-Decoder are responding via Xlight only.

Xlight-Id of Central: Definite identification of the Xlight-Center. All programmed locomotive-addresses of the Loc-Decoders are related in connection with the adjusted Xlight-Id only.

The Xlight-Protocol of Digital-S-Inside supports 126 driving steps and up to 16 switch-functions of the mfx-Decoder. The configuration will be not very comfortable because the DiCoStation offers no feedback report. Therefore we will identify the Xlight-support in connection with the DiCoStation as "experimental" as there is no assured feature available from Digital-S-Inside.

To respond a Loc-Decoder with Xlight is the UID of the Loc-Decoder required. The UID is a world-wide explicit number of any mfx-Decoder. Knowing this UID number enables the Xlight-Finder (see 3.2.1.4.) to assign a normal loc-address to the decoder. The decoder will respond to this address as by any other protocols.

There are 4 possibilities to identify the UID of the mfx-Decoder:

a) You can search for the UID with the Xlight-Finder (see 3.2.1.4.). With the first generation mfx-Decoders from Märklin exists a fair chance to find the UID within a few hours because the numbers are in descending order of FF:FF:FF:FF. On new decoders the numbers are scattered at different sections. There is only little change to find the UID within an acceptable time. A complete scan of all possible numbers could need about 2 years.

b) With the ESU LokProgrammer you can read the UID of all ESU-Decoders and the Märklin-Decoder of the first generation. It is not possible to read the UID of the Märklin-Decoder of the new generation.

c) The Tams-Central Unit EasyControl can identify the UID of mxf-Decoder on the programming track.

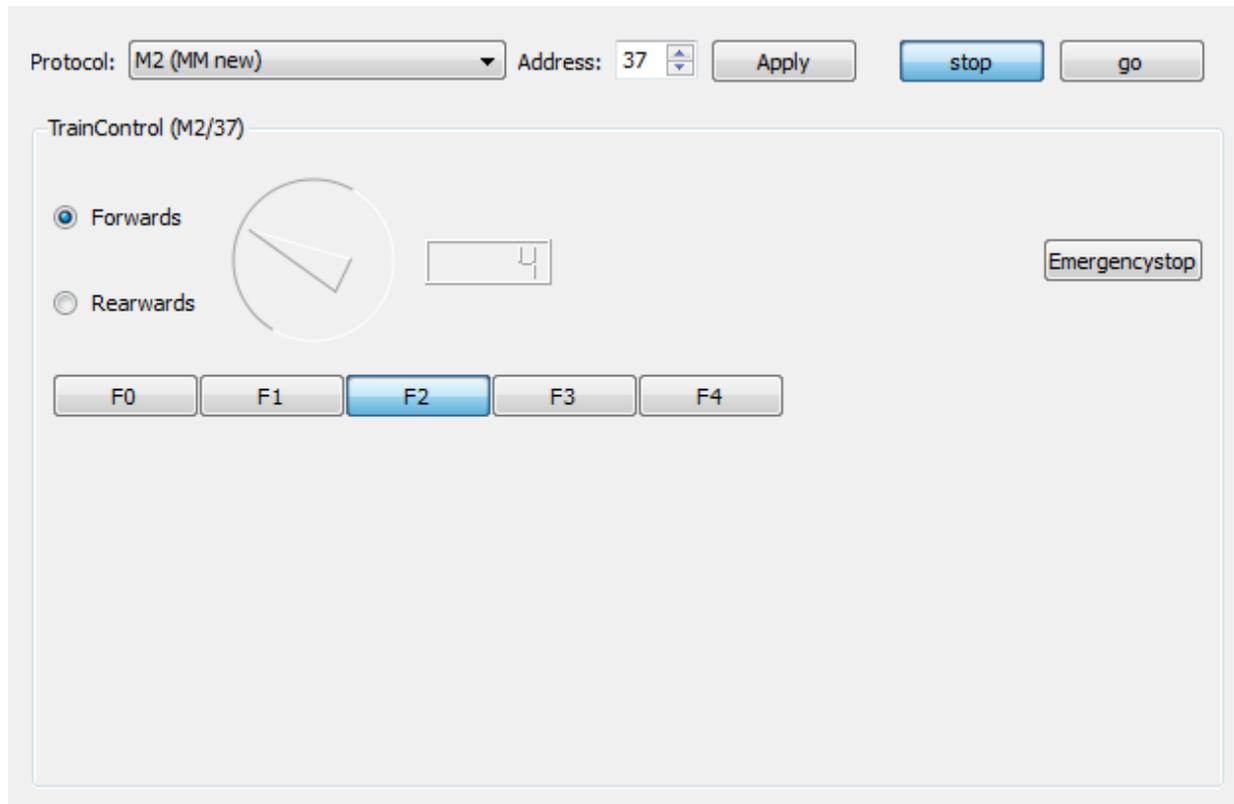
d) The Central Station 2 indicates the UID of the recognized Decoder not directly but you can get the UID with a trick.

At first the CS2 has to recognize the decoder. Then you have to create a data-backup of the CS2 on a USB-Stick. At the zipped backup copy you can find the file "lokomotive.cs2". You can open this file with a text-editor. There you can find the UID as "mfxuid".

If you have no possibility to identify the UID you can eventually ask a friend or your software dealer for help by using a suitable device.

3.2.1.1. TrainControl

With TrainControl you can test the function of a Loc-Decoder.



Select the protocol and the address of a Loc-Decoder then click onto "apply". Now will be a speed regulator and function keys indicated corresponding to the selected protocol.

With "stop" and "go" is it possible to switch the track voltage on or off.

3.2.1.2. Keyboard

With the Keyboard you can test the function of a switch decoder.

Protocol: Addressrange:

Keyboard (MM/33-64)

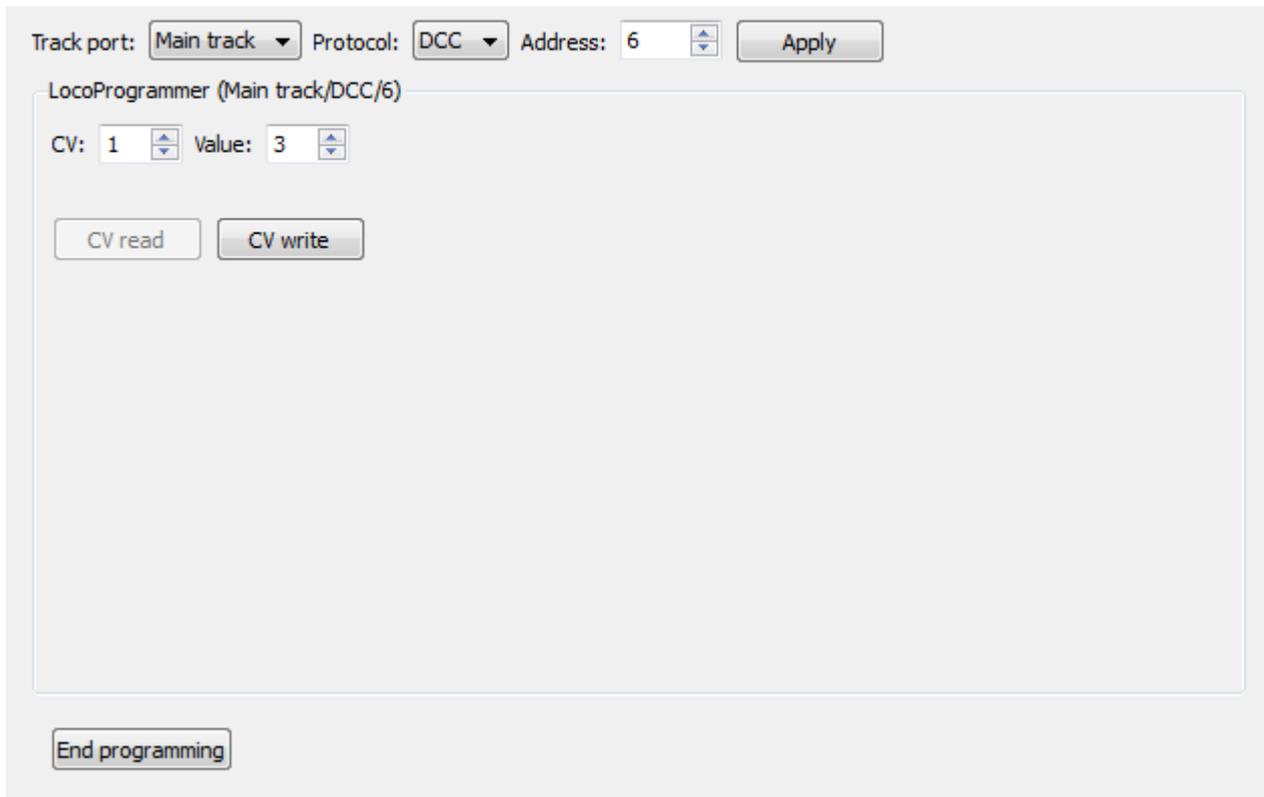
33	34	35	36	37	38	39	40	41	42	43
<input checked="" type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input checked="" type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r
<input type="radio"/> g	<input type="radio"/> g	<input checked="" type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g	<input type="radio"/> g
44	45	46	47	48	49	50	51	52	53	54
<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r
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55	56	57	58	59	60	61	62	63	64	
<input type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	<input checked="" type="radio"/> r	<input checked="" type="radio"/> r	<input type="radio"/> r	<input type="radio"/> r	
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For testing please select the protocol and the address section of the switch decoder and click onto “apply”. Now switch buttons for switching will be indicated.

With “stop” and “go” you can switch-on or off the track voltage.

3.2.1.3. LocoProgrammer

With the LocoProgrammer is the programming of the CV-Register of loc-decoder possible.



The programming of the following protocols will be supported:

MM (Märklin Motorola)
DCC PoM (Programming on the Main)

For programming the decoder select at first the track connection which is connected to the track where the locomotive is located. The DiCoStation contains no programming-track therefore the main track has to be used. Select now the protocol for the programming. Now enter the actual address of the decoder and activate the button "Apply".

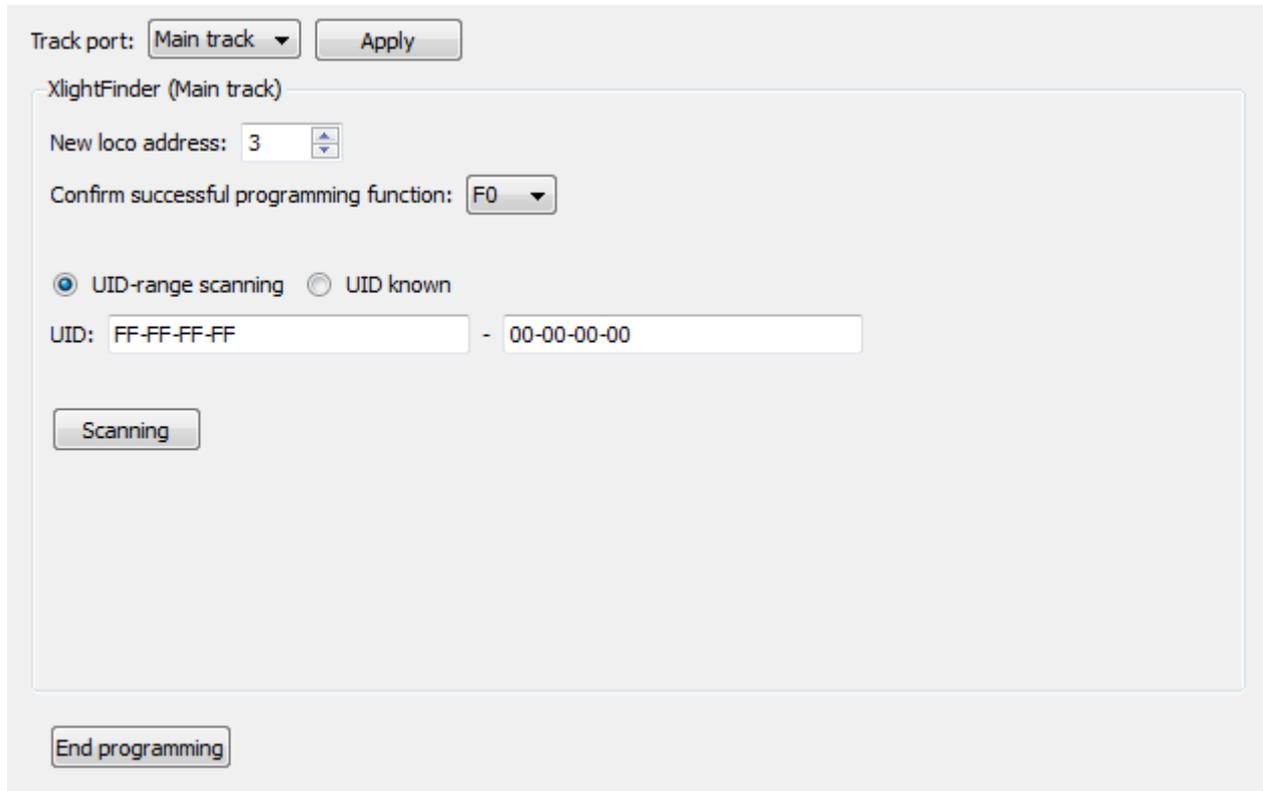
Select the number of the CV-Register and the wanted value and activate to button "CV write". You can repeat this operation several times.

By activating the button "End programming" you can close the programming process.

The meaning of the CV-Register can be normally found within the instruction of the decoder.

3.2.1.4. Xlight-Finder

With the Xlight-Finder you can search for the UID of a mfx-Decoder and assign a normal address to the decoder. **The Xlight-Finder will be indicated only if Xlight will be activated at the configuration of the DiCoStation.** Particular details and general information about Xlight can be found at 3.2.1. e).



The screenshot shows a software window titled "XlightFinder (Main track)". At the top, there is a "Track port:" dropdown menu set to "Main track" and an "Apply" button. Below this, the "XlightFinder (Main track)" section contains a "New loco address:" spinner box with the value "3", a "Confirm successful programming function:" dropdown menu set to "F0", and two radio buttons: "UID-range scanning" (selected) and "UID known". Underneath the radio buttons is a "UID:" field with two input boxes: the first contains "FF-FF-FF-FF" and the second contains "00-00-00-00", separated by a hyphen. A "Scanning" button is located below the UID fields. At the bottom of the window, there is an "End programming" button.

To assign an address to a locomotive select at first the track connection which is connected to the track where the loc is located. The DiCoStation contains no programming-track therefore the main track has to be used. Activate now the button "Apply". Enter now the address for the loc. Select the switch-function (F0 – F15) for the confirmation of the successful programming.

Especially by scanning an UID-section is it advisable to select a switch-function which can be permanently recognized (e.g. light). Never use a switch-function which can produce a defect during long time operation (e.g. smoke generator).

Now enter if you do know the UID of the Loc-decoder or if the UID shall be search for.

a) UID-Range scanning:

Enter the range to be scanned and activate the button "Scanning".

b) UID known:

Enter the UID of the decoder and activate the button "Writing Address".

Finally you can close the programming process with the button "End programming".

3.2.2. HSI-88

Here you find the configuration of the HSI-88.

Important Note:

Please take care that the HSI-88 should only be activated here if your control program does not support the HSI-88. If your control program is able to support the HSI-88 this should be preferred and the HSI-88 shall remain here deactivated.

HSI-88 Version: V. 1.09 / HSI-88-USB / 1.05r Win 7 (64) / (c) 2011 LDT & Falkner active

Settings

Porttype: USB Port: USB1

Feedbackmoduls per bus: left 0 + middle 0 + right 1 = 1 (max. 31)

Apply Discard

HSI-88 Version: Version of the connected HSI-88.

active: Here can be the HSI-88 activated respectively deactivated.

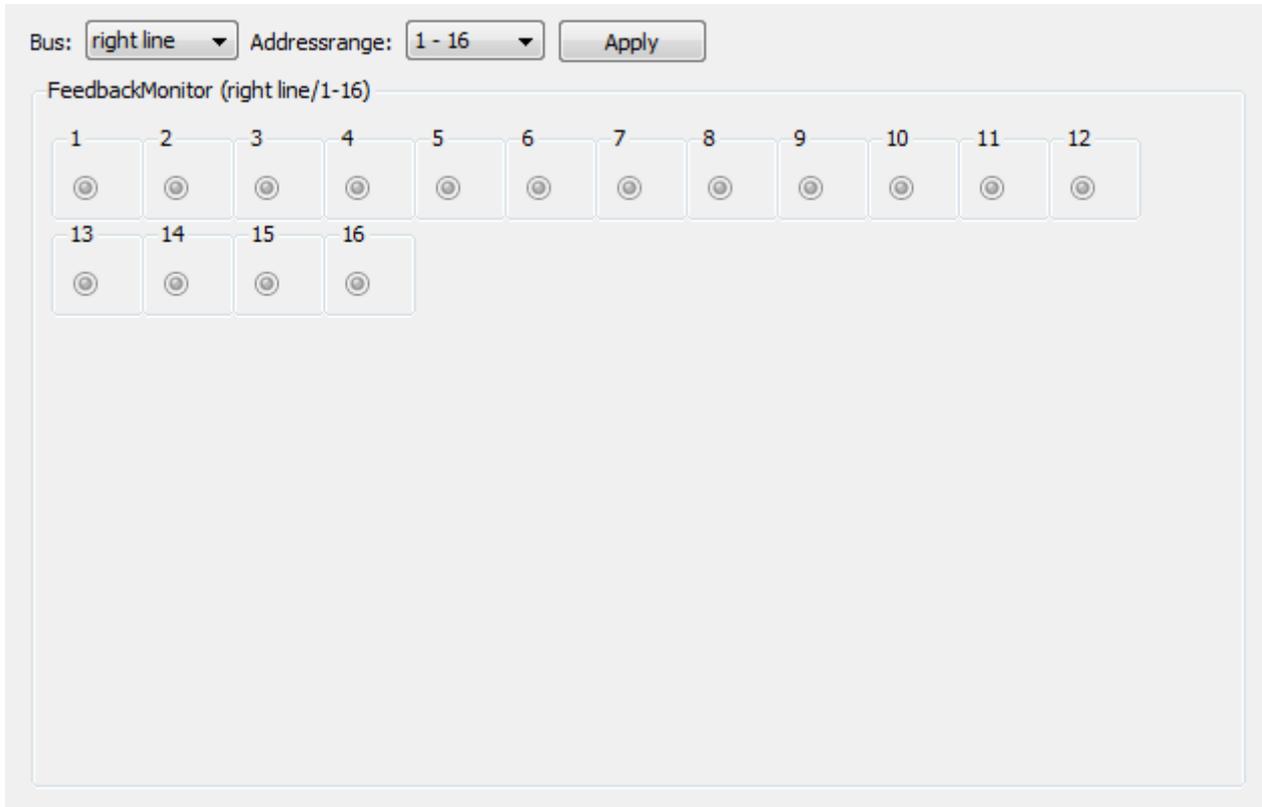
Port Type: Register if the HSI-88 has been serial or USB connected.

Port Number: Number of the COM- or USB-connection.

Feedback Modules on each Bus-Line: Here you have to register how many Feedback-Decoder are connected to each line of the HSI-88. The total summary should not extend 31.

3.2.2.1. Feedback Monitor

You can test the function of a feedback decoder with the Feedback Monitor.



Select the bus and the address range of the feedback decoder and click onto “apply”. The status of the feedback contacts will be indicated.

4. Network Capability (for Experts)

Dsi consists technically out of three single components which communicate via a TCP/IP-Network. Within a simple case all three components will run on the local Computer. If you do know a little about network functions you can have the option e.g. to connect the hardware to one Computer and the control program onto a separate Computer.

a) The Dsi-Service (“DsiService.exe”) is a server-program which runs in the background without an own screen display. It controls the connected hardware e.g. a DiCoStation or a HSI-88 and provides their functions via the network. Therefore is it required that the Dsi-Service has to run on the computer which has been connected to the hardware.

b) DigiCom (“DigiComService.exe”) is a service for the simulation of an Intellibox via a virtual serial interface. DigiCom will register as client on a Dsi-Service for the control of Dsi. It provides the own functionality via a virtual serial interface. The DigiCom-Service has to run always on the Computer on which the control program e.g. Windigipet shall run.

c) **The Dsi-Suite** (“DsiSuite.exe”) is a graphic surface for configuration and test of Dsi. The Suite will register as client at a Dsi-Service. Therefore is it possible to configure and test a Dsi-Service which runs on a separate Computer.

The standard configuration is that starting Suite will start the Dsi-Service and eventually the DigiCom as well.

5. Technical Information

Digital formats supported by DSI-2 together with the DiCoStation:

Loc-Decoder

Format	Sub format	Addresses	Driving steps	Function
Motorola	M1	80	14	F0
Motorola	M2	80	14	F0-F4*
Motorola	M3	255	28	F0-F4*
Motorola	M4	255	14	F0-F4*
Motorola	M5	80	27	F0-F4*
DCC	D0	127	14	F0-F28
DCC	D1	127	28	F0-F28
DCC	D2	127	126	F0-F28
DCC	D3	16127	28	F0-F28
DCC	D4	16127	126	F0-F28
Xlight	X0	16383	126	F0-F15

*F5-F8 via second address

The quantity of driving steps shall be indicated without driving step 0.

Switch-Decoder

Format	Decoder addresses	Magnet accessory addresses
Motorola	80	320
DCC	512	2048

6. Technical Support

If you have program related questions please contact directly DIGITAL-S-INSIDE INFO-LINE:

E-mail-Service: digitals@modellplan.de

Telephone-Service: 0049 160 96 32 84 62

(Mondays from 7pm to 9pm)

Subject to technical changes and errors.