

Manual

DiCoStation

(DirectCommandStation)

DiCoStation-G Part-No.: 009903

>> finished module in a case <<

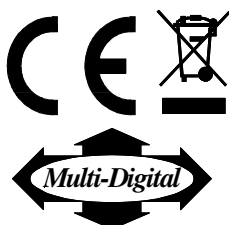


The DiCoStation is a digital command station for monitoring and control of your digital model railway layout with a PC-Software (e.g. Railware, TrainController, WinDigipet).

For the USB-Interface (1.1 / 2.0 Full-Speed; galvanically separated) with the digital formats DCC and Märklin-Motorola plus three s88 feedback-lines.

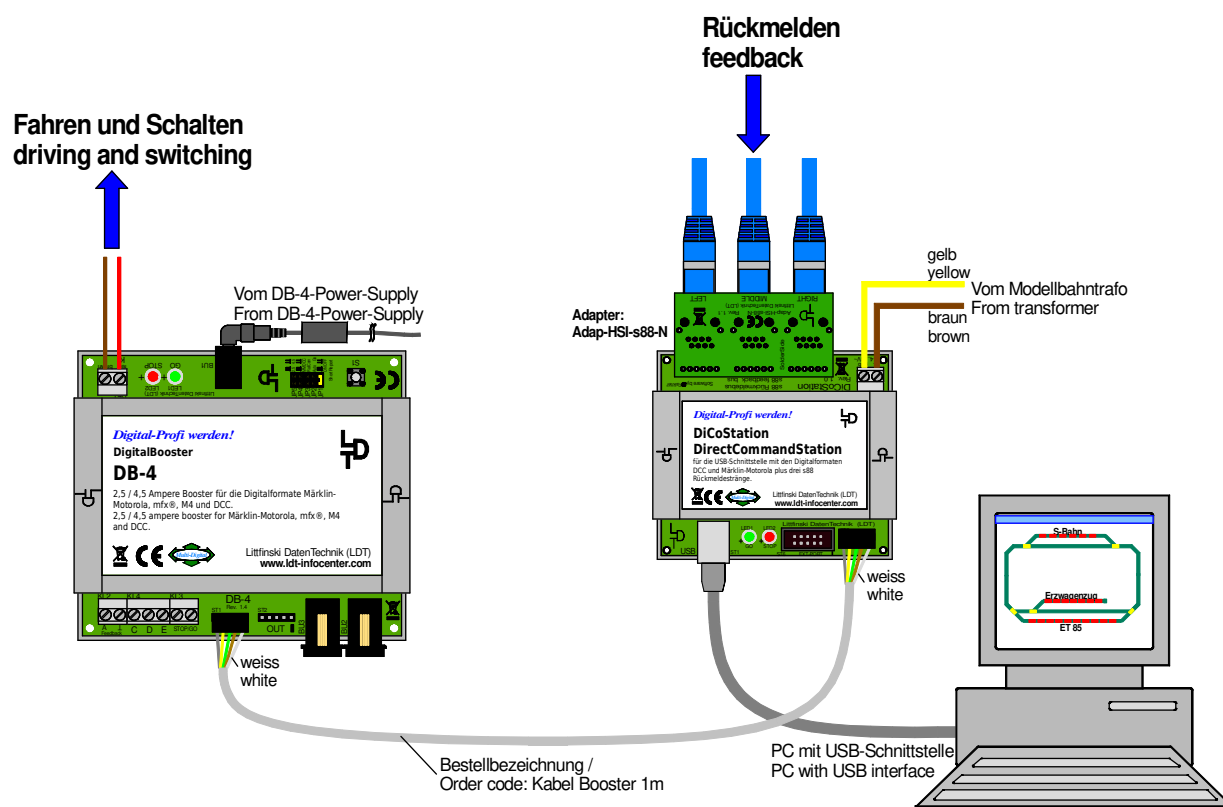
The DiCoStation supports with interaction of DSI 2:

- 16127 DCC-Loc-Addresses with up to 126 driving steps and 28 functions
- 255 Motorola-Loc-Addresses with up to 28 driving steps and 8 functions
- 2048 Magnetic article-addresses under DCC and 320 under Motorola
- max. 496 Feedback-Contacts for up to three s88 Feedback Lines



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1. Preface / Safety Instruction:

You have purchased the **DiCoStation** within the assortment of **Littfinski DatenTechnik (LDT)** for your model railway layout.

The **DiCoStation** is a **digital command station** that shall be connected to a PC via an **USB-interface**. It requires no operation elements because all required set-ups will be adjusted directly at the PC. This initiated the name of **DirectCommandStation (DiCoStation)**. At first is the **installation** and **configuration** of the **USB-Driver** and the **Software Digital-S-Inside 2 (DSI)** required.

Apart from the **DiCoStation** and the **activated** Software **DSI** is only a **DigitalBooster (e.g. DB-2 or DB-4)** required, which can be controlled via the **5-poles Boosterbus** and as well a **model railway control software**.

At the section “**Downloads**”, you can as well download the **demonstration software DSI** for the **first installation**. Within the **demonstration mode** is it possible to **switch-on** the **track voltage** for the duration of **max. 5 minutes**. After **automatic switch-off** of the track voltage you can start the **DSI demonstration version** again.

For the **continual operation** you need the **DSI-activation code** for your **DiCoStation**. The **DSI activation code** is available under www.modellplan.de by company **modellplan**.

We wish you to enjoy using this product!

This unit will be supplied with a **24-month warranty**.

- Please read this **instruction carefully**. **Claim of warranty will expire** due to **damages caused by disregarding the instructions**. We will **not cover any liability** for the result of **consequential damages**.
- We designed our devices for indoor use only.
- At the section “**Downloads**”, you can as well **download** this **handbook as PDF-file** with **colored pictures** from **our Web-Site (ldt-infocenter.com)** and **open** or **print** it with **Acrobat Reader**.
- Many **illustrations** at this **manual** are **identified** with a **file name** (e.g. **page_937**). You can find those files on **our Web-Site** at the section “**Sample Connections**” of the **DiCoStation**. You can **download** the files as **PDF-File** and make a **colored print** at the **DIN A4** format.



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2. USB-Driver installation:

The **DiCoStation** is an **USB-Unit** for the connection to an **available USB-Interface Port** of the **PC**. The required **USB-Connection-Cable** will be supplied together with each **DiCoStation**.

All **USB-Units** require a so-called **USB-Unit Driver** which can be downloaded from our **Web-Site** at the section "**Downloads** / Direct Command Station DiCoStation" (https://www.ldt-infocenter.com/dokuwiki/doku.php?id=en:dl_dico) together with the **ServiceTool** and the **Software DSI**. The **DiCoStation** is a **dual-purpose unit**. During **installation** two **drivers** will be loaded.

There are **DiCoStation USB-Drivers** for the following **PC operating systems** available:

- **Windows 10 (32- and 64-Bit)**
- **Windows 8 / 8.1 (32- and 64-Bit)**
- **Windows 7 (32- and 64-Bit)**
- **Windows Vista (32- and 64-Bit)** from Service Pack 2
- **Windows XP** from Service Pack 3

2.1 Manual Driver-Installation at sample of Windows 10:

If the **Windows operation system** identifies a **new USB-Unit** the **installation** of the required **USB-Driver** will be performed **automatically**. With reference to the **used operation system** is it possible that the **installation** will be a **little different** to the following description.

Switch-on your **PC** and connect the **flat USB-Plug** of the enclosed **USB-Connection cable** to an **available USB-Interface port** of the Computer.

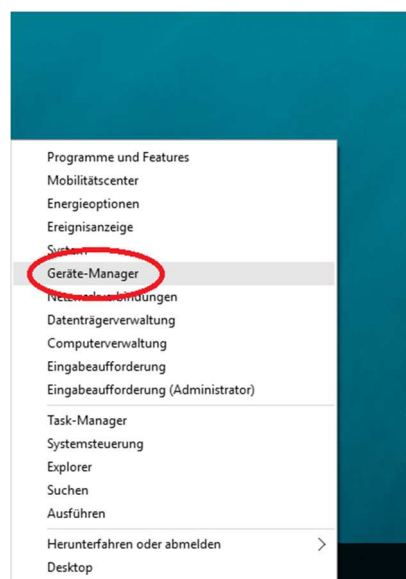
Following connect the **square plug** of the **USB connection cable** to the **socket marked USB** of the **DiCoStation**. All **other connections** of the **DiCoStation** will remain without engagement.

The **red Light Emitting Diode of the DiCoStation** will lighten up and on the PC-screen the info "**Neue Hardware gefunden**" ("New hardware found") will be shortly indicated.

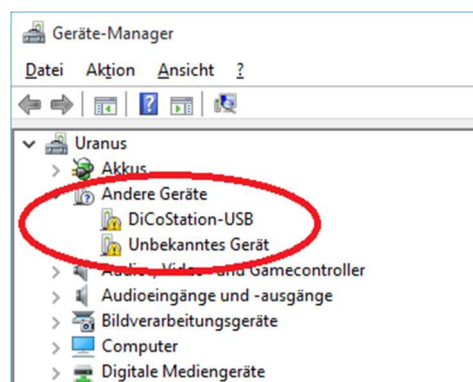
The **driver installation** can be performed **manually**. The following **installation steps** are valid for **Windows 10**. **Other operation systems** can require **little different steps**.

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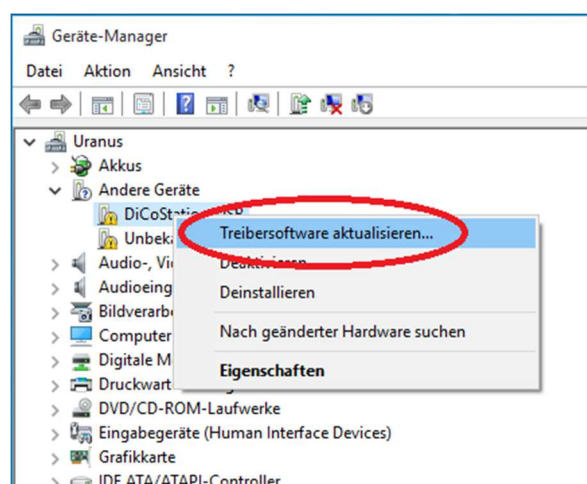
1. Open the Geräte-Manager (Device-Manager) by clicking with the left mouse key onto the Windows-symbol (mostly at left bottom) and select the Device-Manager.



2. If the DiCoStation has been connected to the PC via an USB-Interface-port there will be two new devices identified at the Geräte-Manager (Device-Manager).

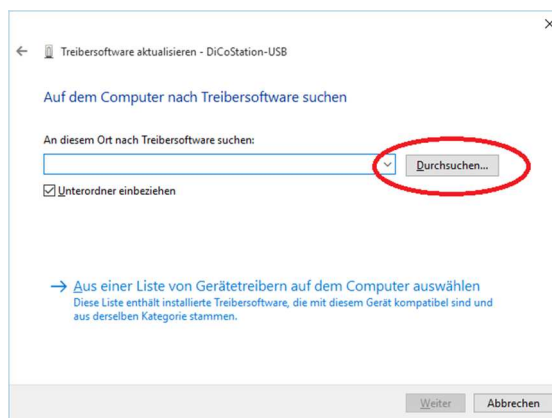
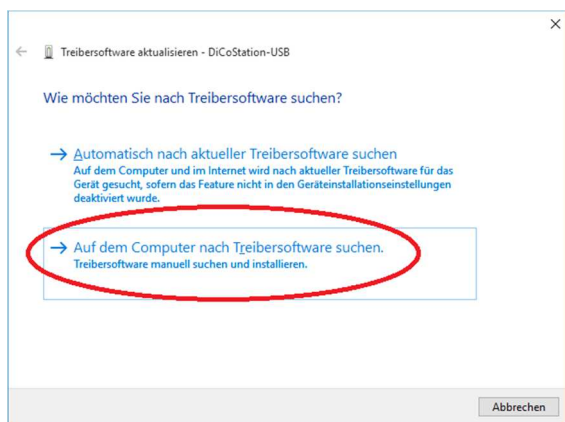


3. Click with the right mouse key onto the first new device (DiCoStation) and select the menu item “Treibersoftware aktualisieren” (“Driver software updating”).

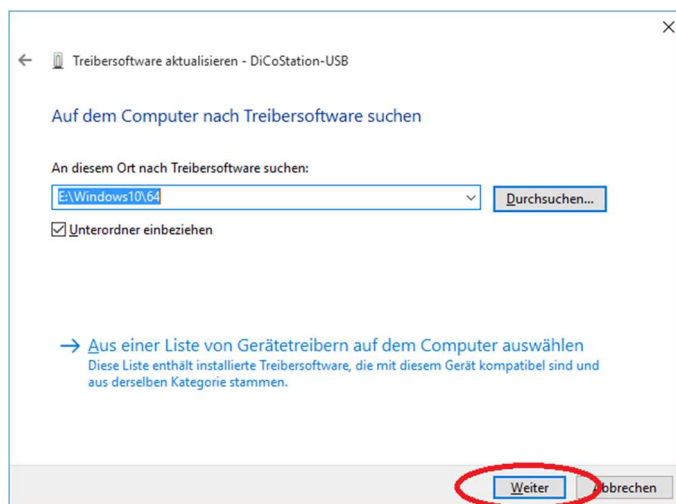
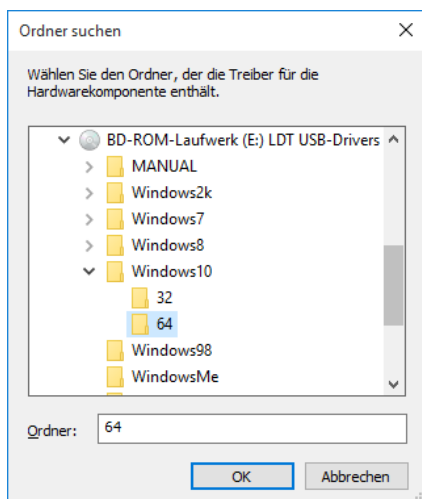


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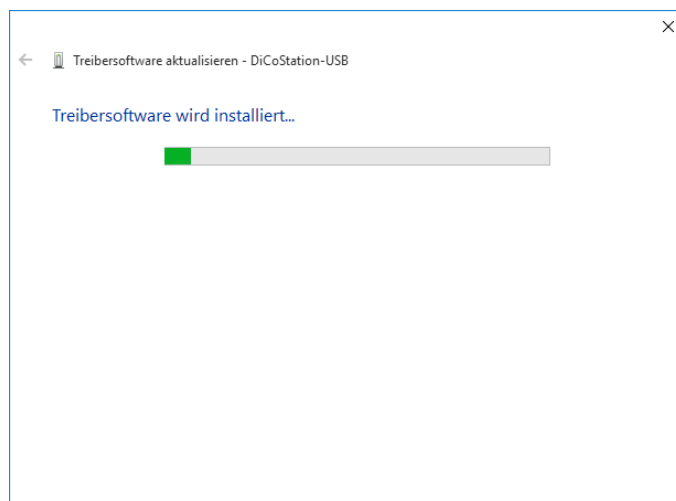
4. Select “Auf dem Computer nach Treibersoftware suchen” (“Searching for driver software on the computer”) (picture left). Now click onto the button “Durchsuchen...” (“Searching...”) (picture right).



5. Select the Download-Directory where you have saved the downloaded driver (at the sample: E:\ Windows10\64). If the directory path has been correctly accepted click onto “Weiter” (“Forward”) (sample picture right).

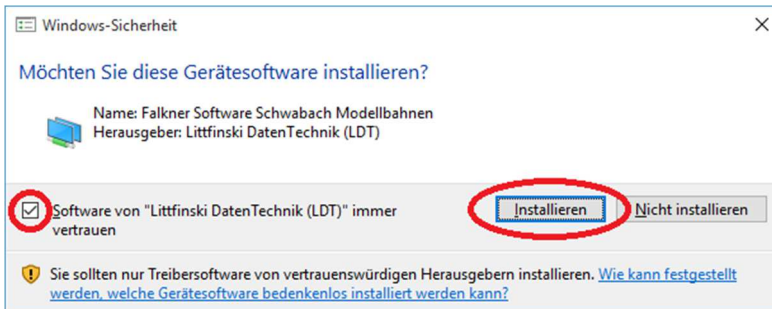


6. Now will be the driver software installed. In accordance to the operation system this can last about several minutes.

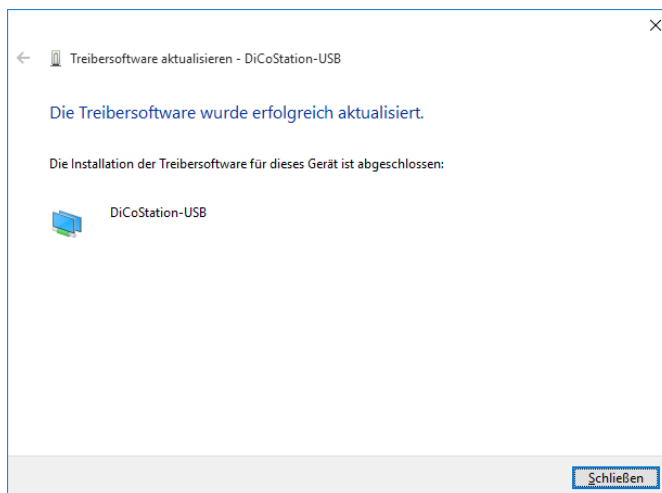


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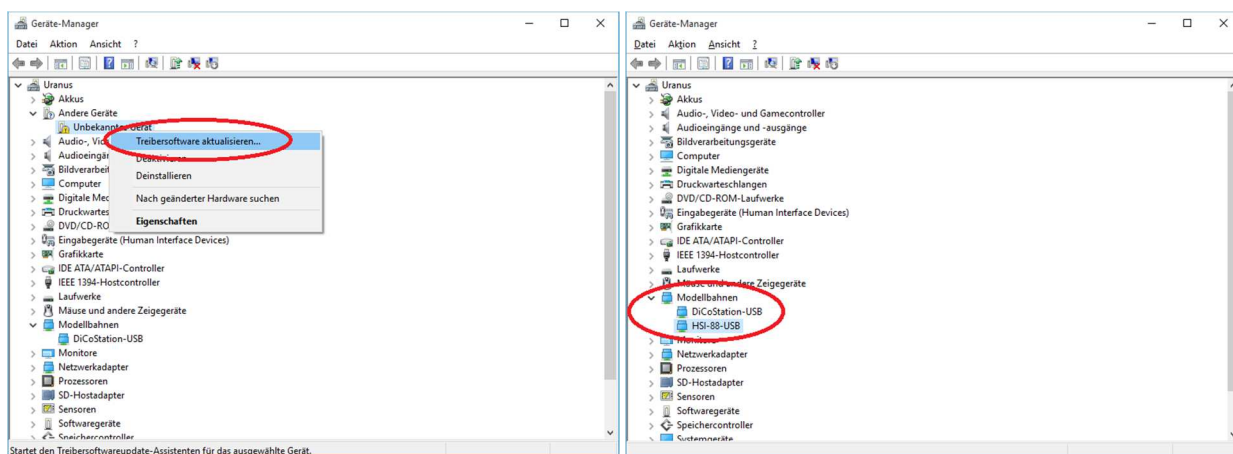
7. In between will be the **origin** of the **driver software** identified by **certificate**. Set the **correct hook** and click onto **“Installieren”** (“Install”).



8. If the **driver software** has been **successfully installed** click onto **“Schließen”** (“Close”).



9. Repeat the steps 3 to 8 for the **second device** „**HSI-88 USB**“ (picture left). After **successful installation** you will find at the **device manager** a new **device type** **“Modellbahnen”** (“Model railways”) with the **driver software** for **DiCoStation-USB** and **HSI-88-USB** (picture right).



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3. DIGITAL-S-INSIDE 2 (DSI) installation and configuration:

To enable the operation of the **DiCoStation** together with your model railway software is the **Software Digital-S-Inside 2 (DSI)** required. This **software** is suitable for the **operation systems**:

- **Windows 10 (32- and 64-Bit)**
- **Windows 8 / 8.1 (32- and 64-Bit)**
- **Windows 7 (32- and 64-Bit)**
- **Windows Vista (32- and 64-Bit)** from Service Pack 2
- **Windows XP** from Service Pack 3

Important Note: During installation and configuration shall the **DiCoStation** remain connected to the PC. All other connections of the **DiCoStation** shall be furthermore vacant.

Within the **next step** please **install** and **configure** the software **DIGITAL-S-INSIDE (DSI)** as explained at the **installation manual**.

- At the section “**Downloads**” on our **Web-Site** (www.ldt-infocenter.com) you can **download** this **DSI-installation manual** as **PDF-file** with **colored pictures** and **open** and **print** it with **Acrobat Reader**.

For any **questions** regarding **installation** and **configuration** of **DSI** please contact **directly** the **DIGITAL-S-INSIDE INFO-LINE**.

The **contact information** can be found at the **Installation-Manual DIGITAL-S-INSIDE 2** at **chapter 6 “Technical Support”**.

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4. DigitalBooster connection:

- **Important:** Proceed with all connection work only by switched-off digital system. Switch-off all transformers.

The **DiCoStation** requires a **digital power amplifier (DigitalBooster)** for the amplification of the **digital information** transmitted to the rails (**digital driving**) respectively for the **accessory decoders (digital switching)**.

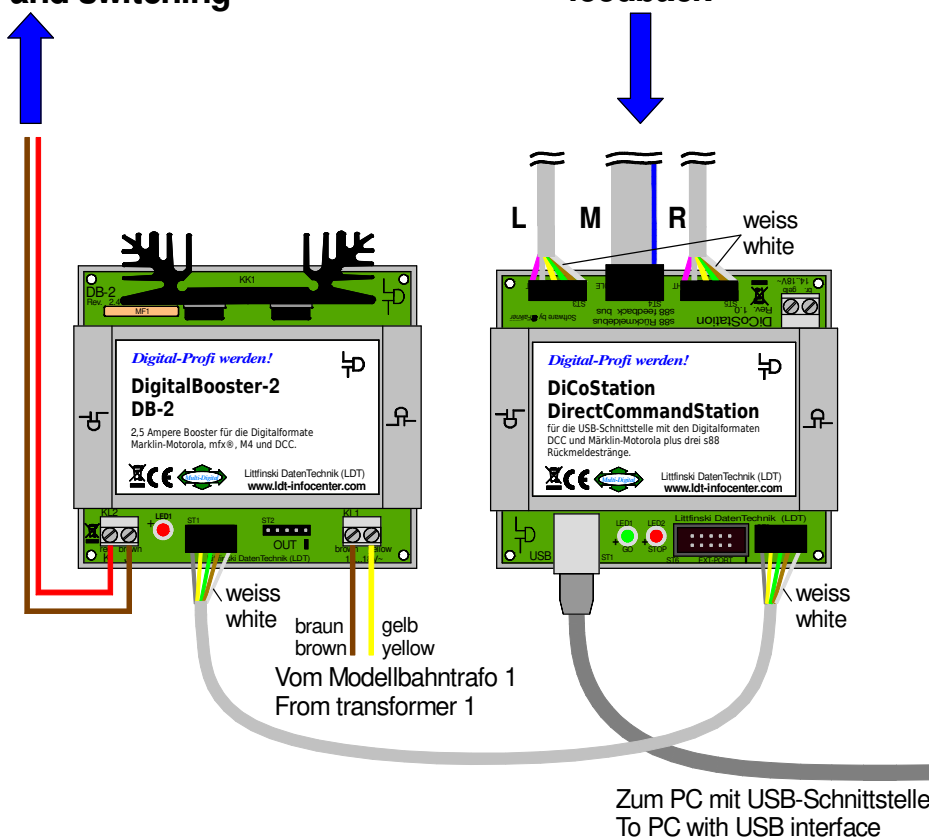
The first **DigitalBooster** (e.g. DB-2, DB-4 or compatible booster) has to be connected via the **5-poles booster bus** to the **5-poles pin bar ST2** of the **DiCoStation** which has been marked with **Booster**.

4.1. Connecting the DigitalBooster DB-2:

The **DigitalBooster DB-2** supplies up to **2.5 Ampere digital current** and can be directly connected via the **5-poles booster bus** with the **DiCoStation**. Therefore the **DiCoStation** will get the **current supply** from the **DB-2**. The **clamp KL1** of the **DiCoStation** shall not be connected.

Fahren und Schalten
driving and switching

Rückmelden
feedback



The **DiCoStation** will get the power supply from the first **DigitalBooster DB-2** and is ready for operation after switching-on the model railway transformer.

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Every **DigitalBooster DB-2** will be supplied with one **booster bus-cable**. Take care that the **white single wire** of the 5-poles cable **corresponds** to the **white marking** at the **pin bar ST2** of the **DiCoStation**.

Please connect the second plug of the **booster bus cable** to the **pin plug bar ST1** of the **DigitalBooster DB-2** which is marked with the letters **"IN"**.

Also on this 5-poles plug has the position of the **white single wire** to correspond with the **white marking** at the **pin-bar ST1**.

The plugs of the 5-poles booster bus cable are assembled in a **correct** position at the **DiCoStation** and on the **DigitalBooster DB2** when the twisted bus cable will show in a direction away from the **DiCoStation** and from the **DigitalBooster DB-2**.

As soon as you connect the **DB-2** (according to the operating instruction) to the current of a **model railway transformer (16 to 18 alternated voltage with a minimum of 52VA)** the **DiCoStation** will get as well the current supply and is in an operation mode.

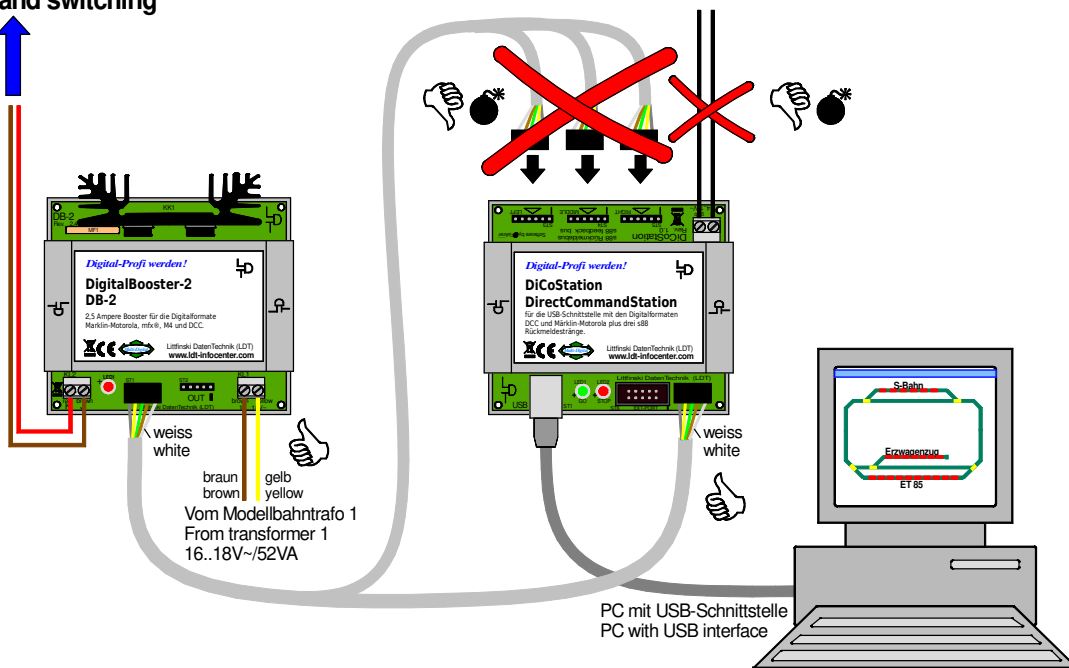


The **two-pole clamp KL1** of the **DiCoStation** shall never be connected.



Never connect the **booster-cable** onto one of the three **6-poles pin bar ST3 to ST5** of the **DiCoStation**.

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driving and switching



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The **DiCoStation** will be damaged or destroyed if the clamp **KL1** will be connected or the 5-poles booster-bus cable will be connected to one of the pin-bars **ST3 to ST5**.

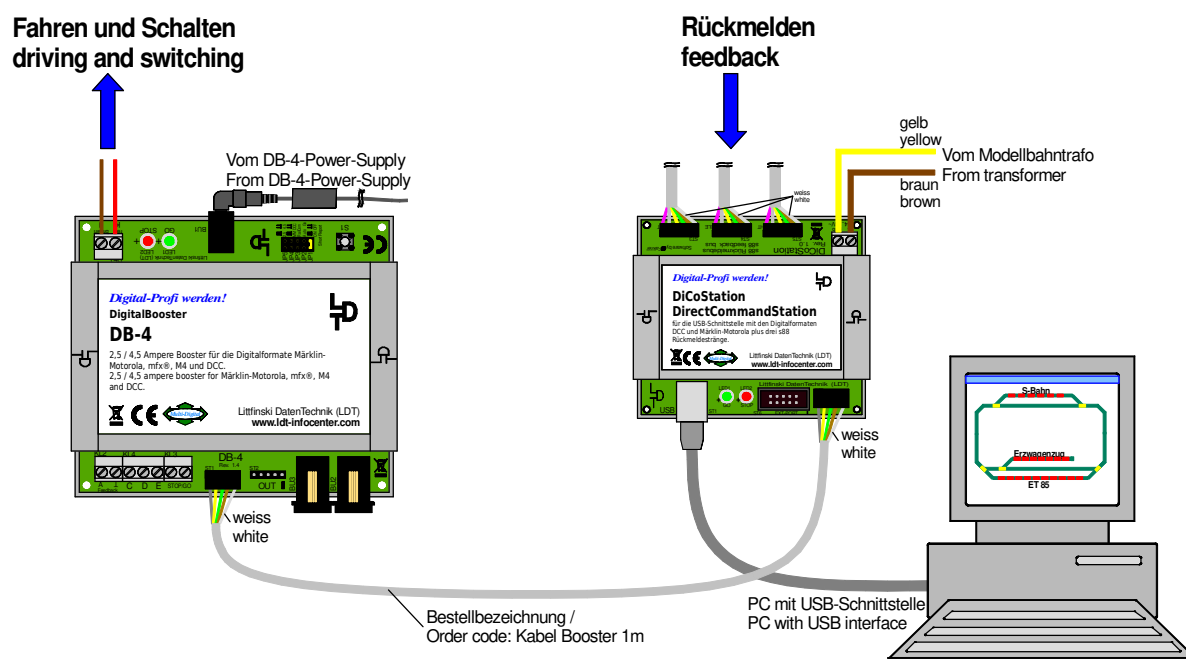


This is the correct way!

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4.2. Connecting the DigitalBooster DB-4:

The **DigitalBooster DB-4** supplies up to **4.5 Ampere digital current** and can be directly connected via the **5-poles booster bus** with the **DiCoStation**.



The DiCoStation will be connected to the DigitalBooster DB-4 via the 5 poles booster bus and get the AC power supply from a model railway transformer (14 to 18V).

For the **DigitalBooster DB-4** you can purchase the **booster bus-cable** as **accessory** with a length of 1 meter. **Order code: "Kabel Booster 1m"**.

The **booster bus-cable** shall be connected to the **5-poles pin bar ST2** of the **DiCoStation**. Please attend to the position of the **white single wire** of the **5-poles cable** to make sure that it **corresponds** to the **white marking** at the **pin bar ST2** of the **DiCoStation**.

The second plug of the **booster bus cable** has to be connected at the **DigitalBooster DB-4** onto the **pin bar ST1** which is marked with **"IN"**.

Here as well has the position of the **white single wire** of the 5-poles cable to **correspond** to the **white marking** at the **pin bar ST1**.

The plug of the 5-poles booster bus cable has been **correct** attached to the **DiCoStation** and to the **DigitalBooster DB-4** if the twisted bus cable shows in direction away from the **DiCoStation** and away from the **DigitalBooster DB-4**.

For the combination with the **DigitalBooster DB-4** is it required that the **DiCoStation** receives on the **clamp KL1** an **external alternated current** of **14 to 18 Volt AC** from a **model railway transformer** or a **direct current** of **15 to 24 Volt DC** from a **switched mode power supply**. The **direct** current has to be connected with the **plus pole** to the **clamp marked "yellow"** and the **minus pole** to the **clamp marked "brown"**.

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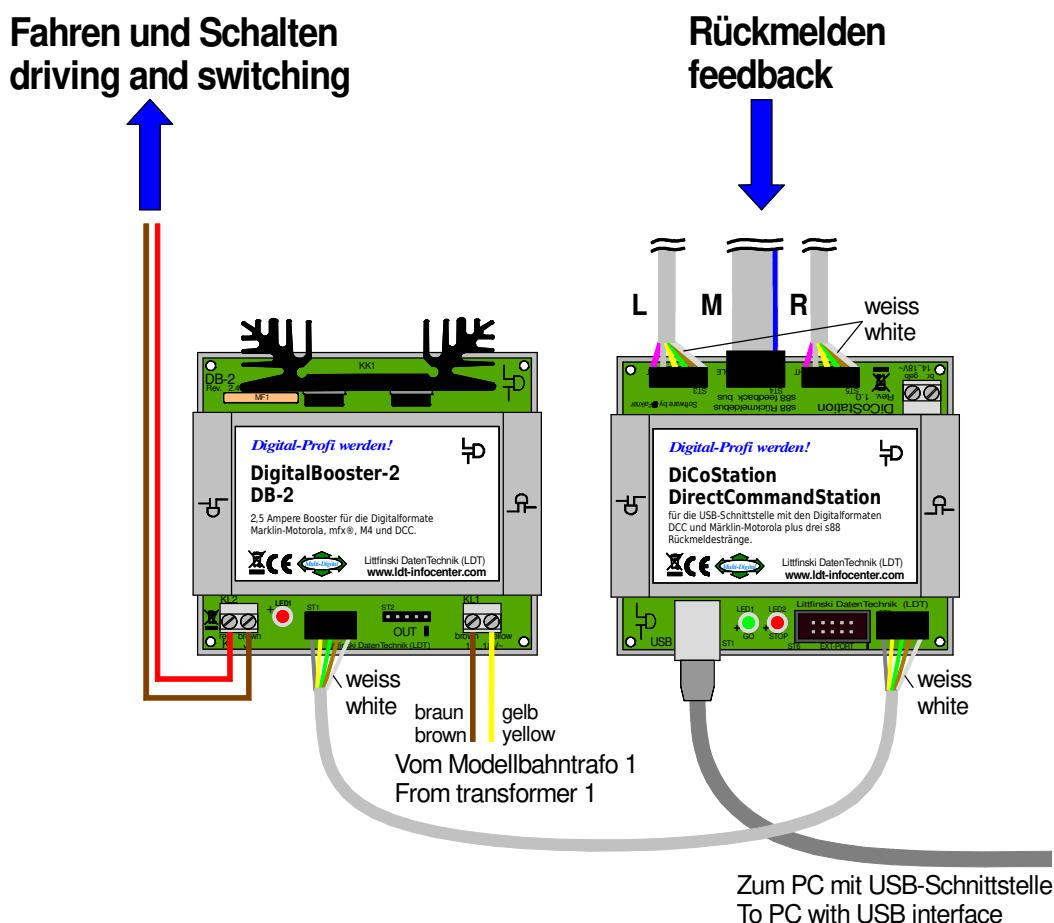
5. Feedback Modules connection:

The application of the **DiCoStation** allows installation of **three s88 Feedback Lines** instead of one. The request of the feedback modules will be therefore **three times as fast**. Additionally is the **arrangement** of the feedback modules below the layout base plate **considerable simple**.

Start always to connect the **first line** to the terminal **Left (L)**. The second line connect to the terminal **Middle (M)**. If you need a third line you should connect this line to the terminal **Right (R)**.

If you use **s88-standard bus connections** attach the **s88-bus plugs** that way to the **6-poles pin plug bar** that the **white single wire** will correspond to the **white marking** at the corresponding **pin plug bar**.

Pay special attention that the **bus-plugs** will **not be plugged** to the **pin bar** in an **offset position**. Otherwise the **s88-inputs** of the **DiCoStation** will be **damaged**.



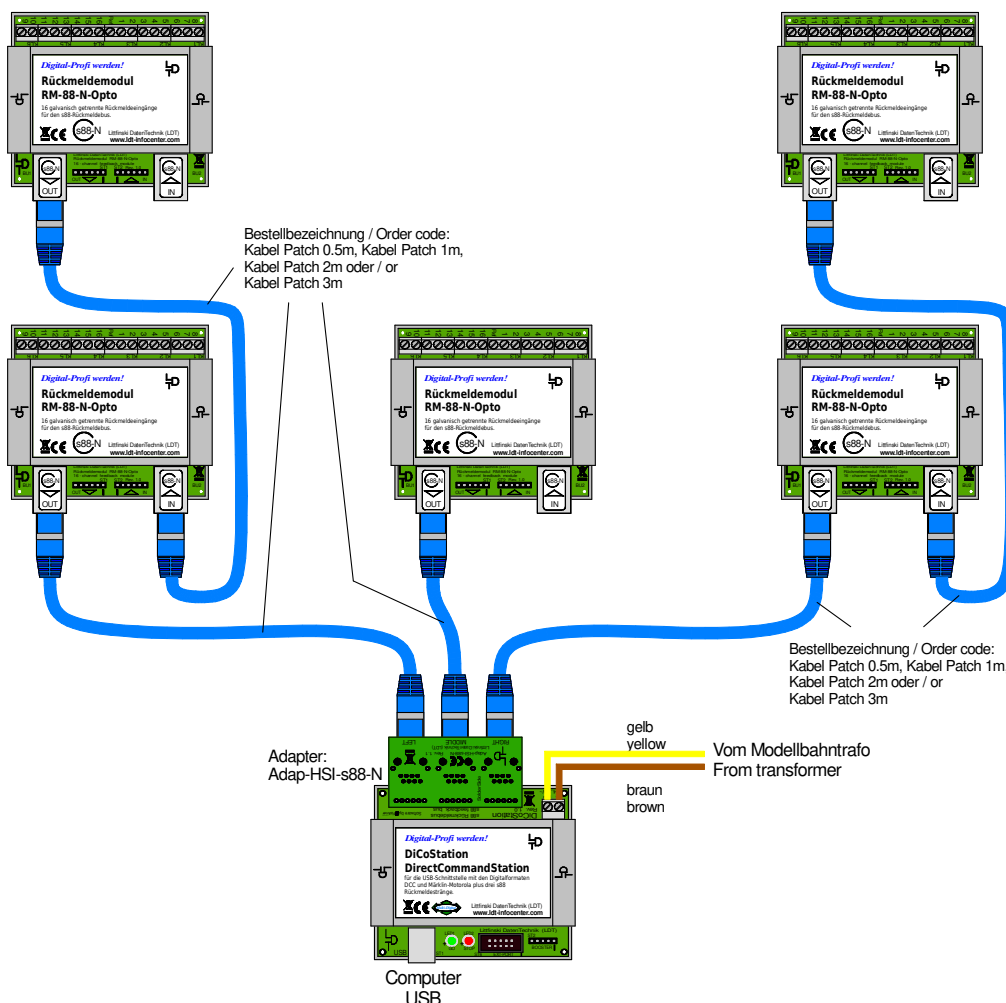
s88-standard bus connections are correct plugged to the three 6-poles pin bars of the DiCoStation. On the pin bar of the middle bus line has been a flat ribbon bus cable attached.

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If you use **Feedback Modules** with **s88-bus connections according to** (e.g. our Feedback Modules **RM-88-N** / **RM-88-N-O** or **RM-GB-8-N**) you have the possibility to connect the Feedback Modules to the **DiCoStation directly via the Adapter Adap-HSI-s88-N** by using the **screened Patch Cable**.

For this connection attach the **three 6-poles socket bars** of the adapter **Adap-HSI-s88-N** onto the **three 6-pole pin bar** of the **DiCoStation**.

For the **three s88-bus lines** are now **RJ-45 sockets** available to realize **s88-bus connections according to** to the feedback modules by using screened **Patch-Cables**.



If the DiCoStation will be extended by the adapter Adap-HSI-s88-N is it possible to use screened patch cables as s88-bus cables to the first feedback module.

Even if you use only a few feedback modules at your layout you should **distribute** the modules **evenly on the three lines**.

This will give you the advantage that the **reading** of the feedback events will be considerable **faster** and **reported to the PC**.

The numbering of the feedback modules: The **standard feedback modules of the s88-feedback systems** dispose of **16 inputs**. The **first 16-fold module** at the **Left** input will be always the **first feedback module within the feedback system**. The further counting will continue until the end of the left line and then via the module at the connection **middle** until the end of the **right** line.

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The **software DSI** and as well the **model railway software** offers mostly the possibility to number each line from 1 upward.

With the **DiCoStation** is it possible to control up to **31 16-fold standard-feedback modules** respectively **62 8-fold feedback modules** (e.g. **RM-GB-8-N** with **integrated track occupancy report**). To each bus line can be a maximum of **31** respectively **62** modules connected. But in **summary to all three lines** cannot be more than **31 16-fold** respectively **62 8-fold modules connected**.

It is possible to connect all **s88-feedback bus compatible** feedback modules to the **DiCoStation**. Apart from the **LDT-Modules RM-88-N** and **RM-88-N-Opto** for the **3-conductor** rail-system and the **RM-GB-8-N** with **integrated track occupancy report** for the **2-conductor** rail-system is it as well possible to use feedback modules from other manufacturers. **Different brands** and **types can be mixed** within the feedback lines.

Various **application- and wiring-samples** are available on our **Web Site** at the **Internet** within the section **Sample Connections** and **Downloads**.

If your **model railway software** supports the **HSI-88-USB** which is **integrated** at the **DiCoStation** the **feedback system** will work **event controlled**: one or several **changes** of feedback inputs will be **reported** to the PC at once. This **saves** considerable **computing time** and will be noticed within a **reduced reaction time** because the PC has not to request (and therefore delayed) about changes at a cyclical mode but receives those reports actual from the **DiCoStation** respectively from the **integrated HSI-88-USB**.

Functional control: Whenever during operation (GO) **feedback changes** will be **transmitted** to the **PC** the **red LED** of the **DiCoStation** will shortly **flash up**.

The software **DIGITAL-S-INSIDE (DSI)** contains an **integrated feedback monitor** for indicating the occupancy status of single feedback modules. For using the feedback monitor you have at first to set the **HSI-88** within the **DSI** to **“active”** and register the **quantity** of the **16-fold feedback modules** of **each feedback line**. At the directory **“Rückmeldemonitor”** (“Feedback Monitor”) you can select the **bus-line** and the **feedback-address** section for your indication of the occupancy reports. **Occupied contacts** will be **marked by a dot**. Additional information is available at the **DSI Installation Manual** attached to you **DiCoStation**.



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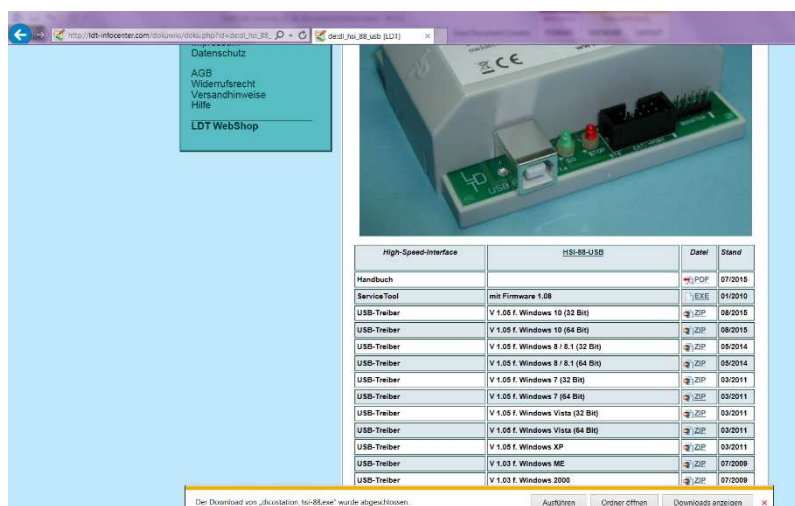
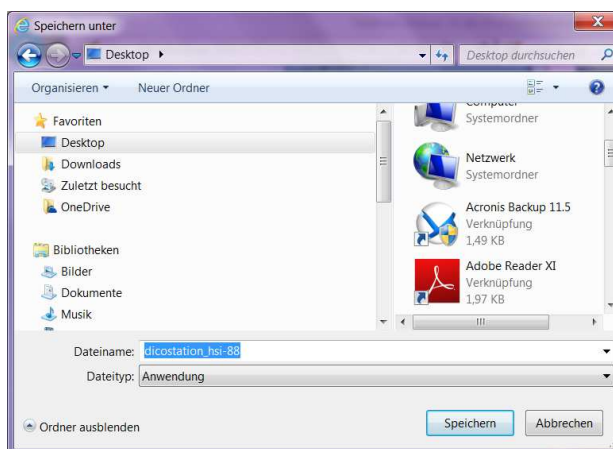
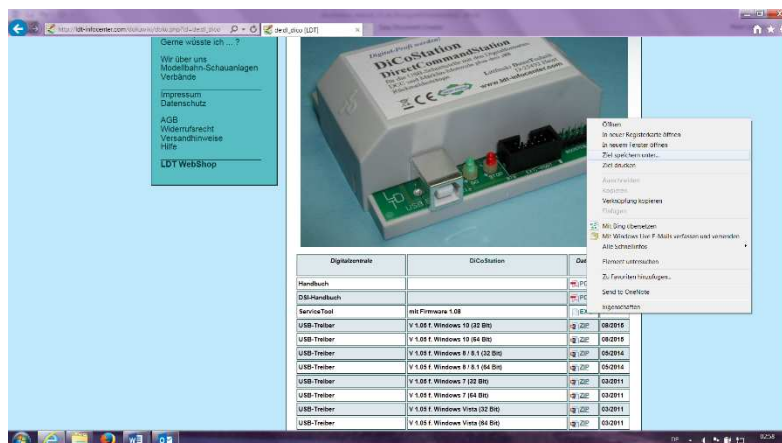
6. Firmware Update:

The software of the **DiCoStation** is a so-called **Firmware**. This software can be **easily actualized** via the PC.

1. At first **load-up** the file **“DiCoStation HSI-88.exe”** to your PC. This file can be found at the **section “Downloads”** on our **Web Site** at the **downloads** for **DiCoStation**. This file is a **ServiceTool**, which includes the **actual Firmware** as well. At first click with the **right mouse button** onto the file **“DiCoStation HSI-88.exe”** and then with the **left mouse button** onto **„Ziel speichern unter ...”** (“Save target under....”).

2. As **saving destination** on your **PC** select at the window **“Speichern unter”** (“Save under”) **“Desktop”** (“Desktop”) and **click** onto **“Speichern”** (“Saving”).

3. **Click** at the window **“Download completed”** at the very right onto **“X”**.



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4. For the following procedure has the **DiCoStation** to be **connected** via the **USB-interface** to the **PC**. The **model railway layout** has not to be switched-on.

5. Call with a **double-click** the program “**DiCoStation HSI-88**” from the **Desktop** and click onto the section “**Update**”.

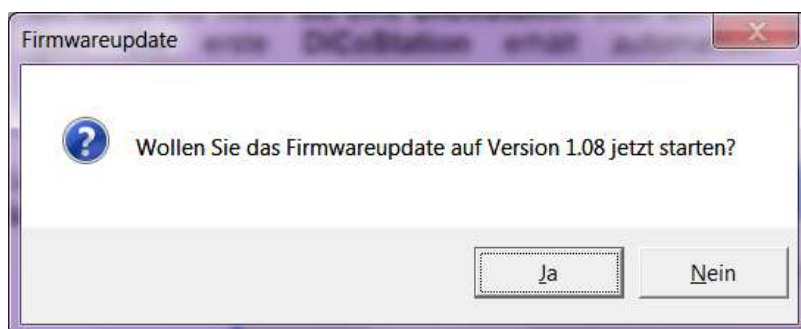
Under “**Installierte Firmwareversion**” (“Installed firmware version”): the present version stored at your **DiCoStation** will be indicated.

If under “**Verfügbare Firmwareversion**” (“Available Firmware Version”): a **higher version number** indicated please **click** onto “**Firmwareupdate**”.



Important Information: The **device number** should **never be changed**. Otherwise the model railway software will not **recognize** the **DiCoStation** any more. The device number will be important as soon as you use more than one **DiCoStation** or **additionally an HSI-88-USB**. The first **DiCoStation** will get automatically always the **device number 1**.

6. Click at the window “**Firmwareupdate**” on “**Ja**” (“Yes”).



7. During the updates should be the **USB-connection** to the **DiCoStation** **not interrupted**. After a short **transmittance time** which will be indicated at two additional windows please **click** at the report “**Firmwareupdate erfolgreich abgeschlossen**” (“Firmware successful completed”) on “**OK**”.



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8. "Installierte Firmwareversion" ("Installed Firmware Version") and "Verfügbare Firmwareversion" ("Available Firmware Version") are now identical. Close now the ServiceTool "DiCoStation HSI-88" with a click on the "X" at the right top window border.



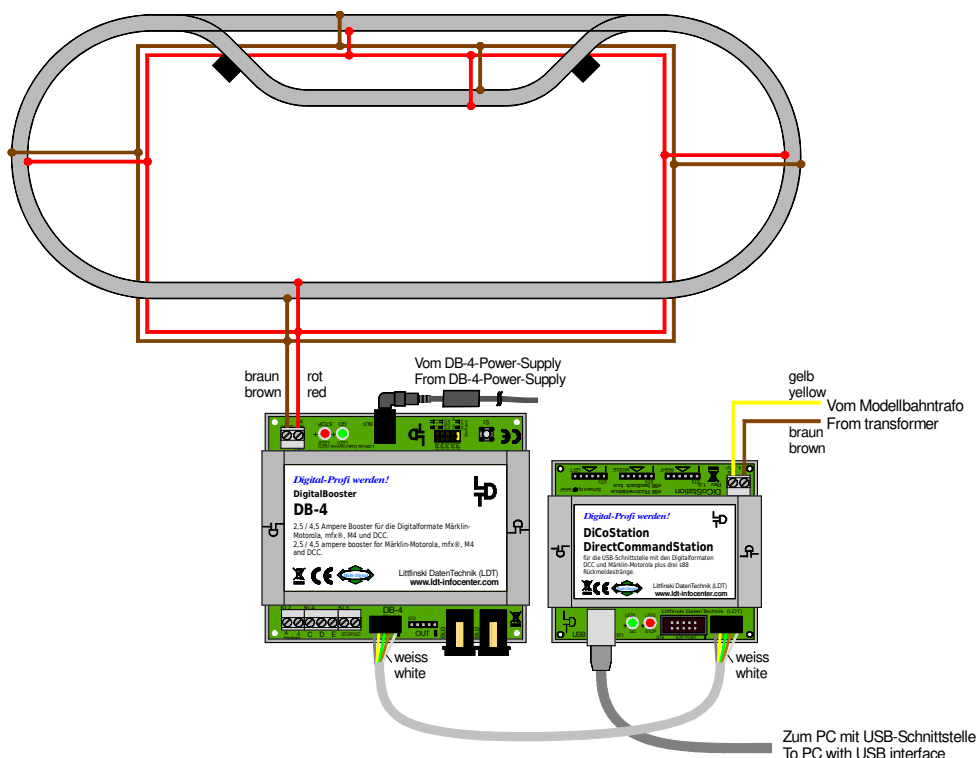
After this successful update you can use the DiCoStation as usual.

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7. Sample Connections 2-rail conductor:

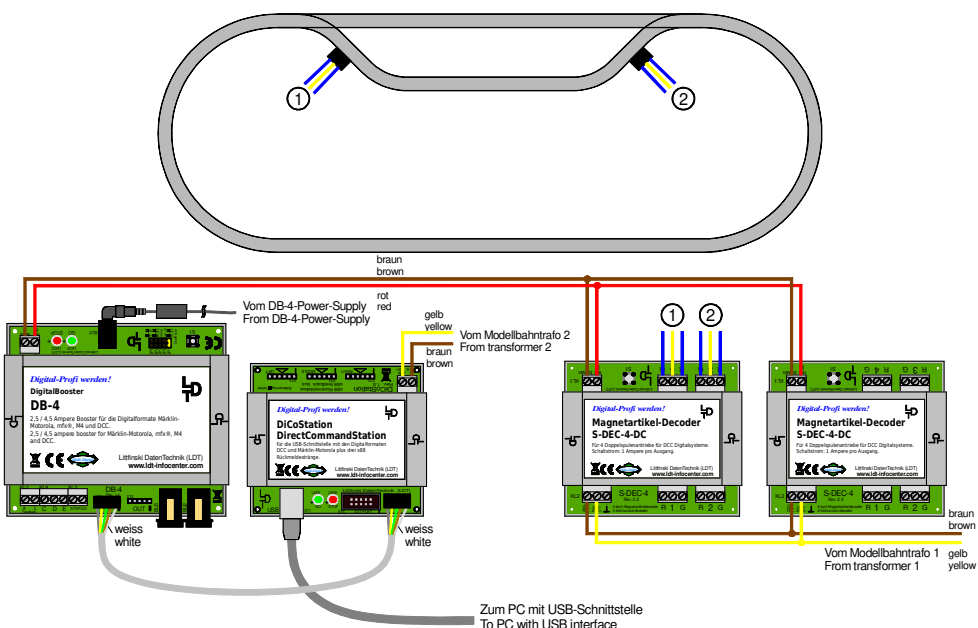
Here are some samples for the wiring of the layout. Further descriptions can be found at our Web-Site www.ldt-infocenter.com at the section “**Digital-Compendium**” within the chapter 1. Wiring circuits will be additionally available at the section “**Sample Connections**”.

Digital current ring conductor with several feeding connections.



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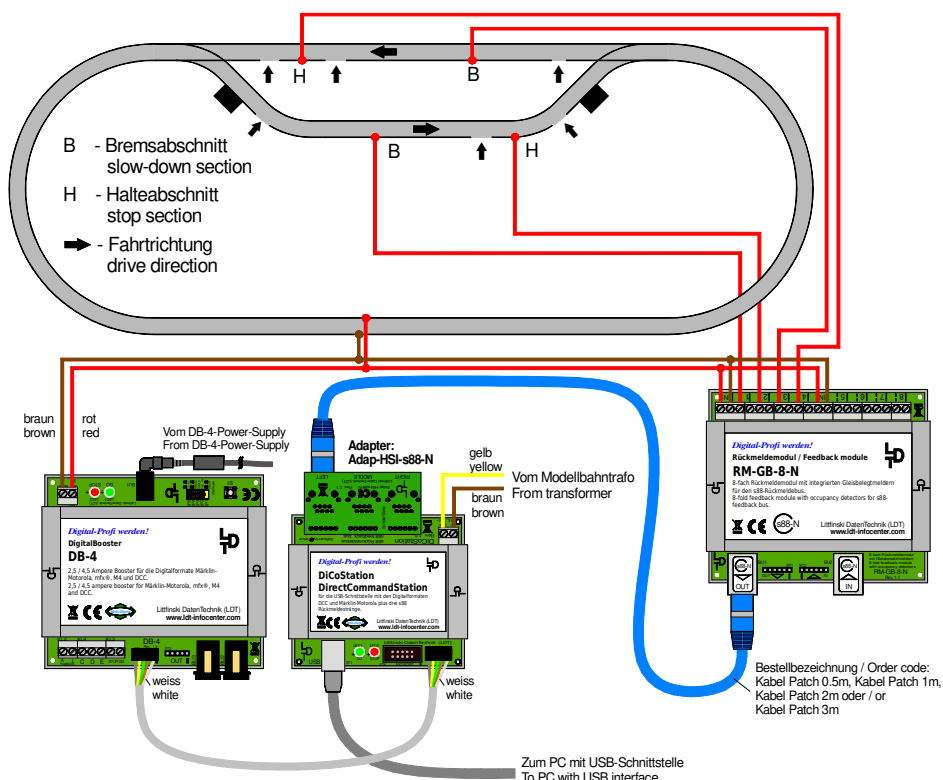
Extra digital current ring conductor for accessory decoder such as Turnout Decoder S-DEC-4-DC.



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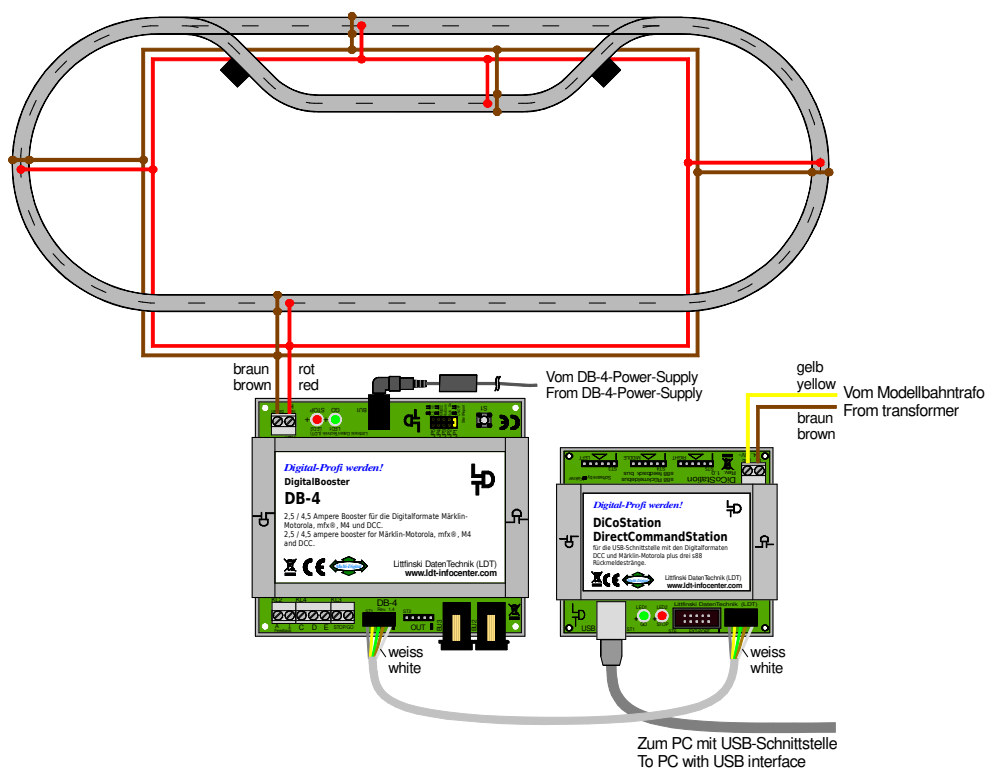
Supply to controlled track sections with the 8-fold Feedback module RM-GB-8-N with integrated track occupancy detectors.



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8. Sample Connections 3-rail conductor:

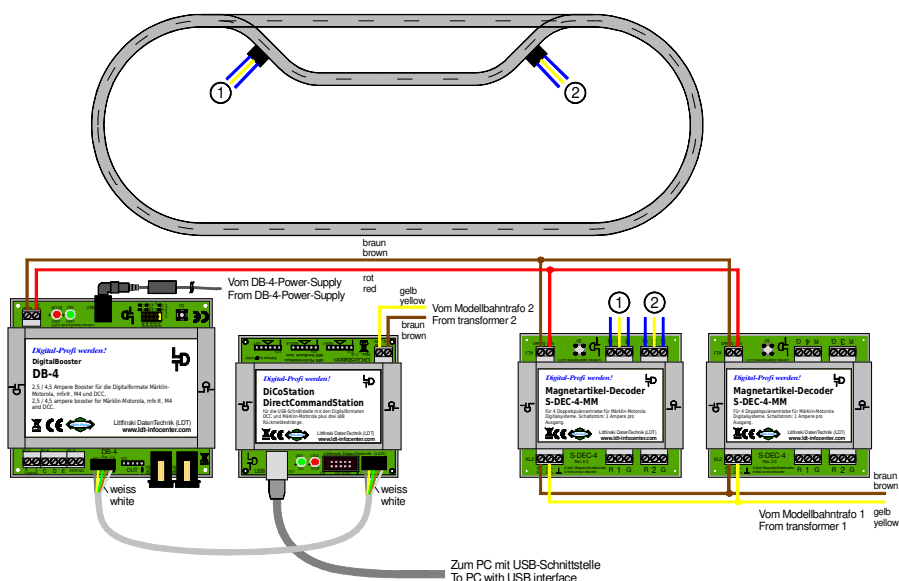
Digital ring conductor with several feeding connections.



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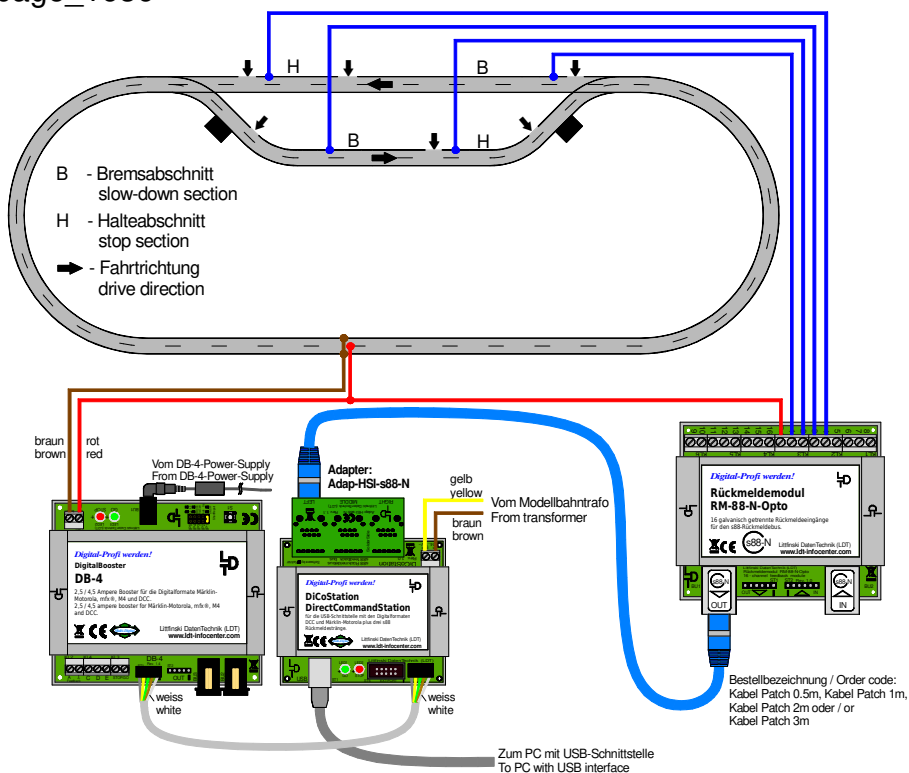
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Extra digital current conductor for accessory decoder such as Turnout Decoder S-DEC-4-MM.



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Track occupancy report via contact rails with the interference protected 16-fold Feedback Module RM-88-N-O.



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This product is not a toy! Not suitable for children under 14 years. Improper use will imply danger or injuries due to sharp edges and tips! Please store this instruction carefully.

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