

DAISY II

DCC Digital Set



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General Information

The DAISY II Digital Set is a digital entry level system for the ambitious model railroder. It consists of a Hand Controller and a DCC Center that are connected by a LocoNet cable. It offers all the functions required for easy operation of a model railway.

1. DAISY II Digital Center

The digital center is the heart of the DAISY II Digital Set. All commands are co-ordinated in the center and processed according to their meaning. It generates the track signal and provides the LocoNet connection for the hand controller.

1.1 Characteristics

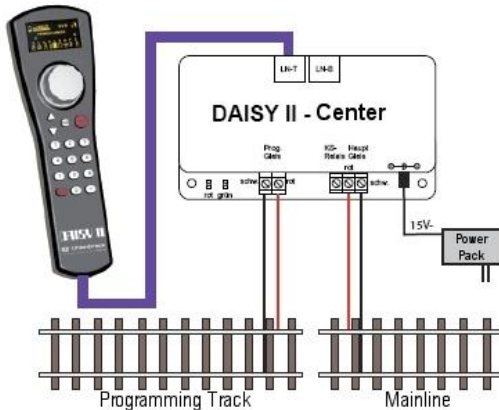
- The DAISY II Digital center can simultaneously and independently control up to 20 locomotives.
- The center supports the DCC Data formats with 14, 28, and 128 speed steps.
- It is possible to separately assign the data format 9999 locomotive addresses.
- Up to 24 special functions can be switched for each locomotive address.
- Up to 2000 solenoid addresses can be controlled with the DAISY II Digital center in the DCC Data format.
- The state of solenoid addresses 1-1024 is permanently saved so that after a restart they are indicated in the correct state.
- The center has a route memory for 16 switching sequences (routes).
- Each route can switch a maximum of 10 steps of solenoid addresses between 1 and 2000.
- The mainline power delivers a current of 2A and is protected against short circuit and overheating. So a simultaneous operation of 4 trains (depending on scale) is possible without having to install additional boosters.
- The Center supplies a programming current of a maximum of 250mA to a separate programming track. The mainline power is switched off during the programming phase.
- The Center can be used to program DCC decoders as well as programmable LocoNet devices.
- As a special characteristic an output for the reversing loop relay (Part No. 61 080) is supplied. The reversing loop relay is controlled by short circuit detection. If a short circuit occurs the relay will switch over before the system is switched off. If the short circuit was caused by the train crossing an isolation in the reversing loop the polarity will be corrected by the switching of the reversing loop relay so rapidly that it will not affect the running of the train.
- The Digital center has two LocoNet sockets on the back. One LocoNet-T connection for LocoNet component such as a DAISY II hand controller, feedback or Switch Module, USB-LocoNet-Interface etc. The second connection, LocoNet-B, serves to connect external boosters such as Power 4 or Power 8.
- A further speciality the DAISY II Digital center implements the RailCom® CutOut in the DCC signal, for use by the MARCO automation system.
- It supports the dispatch mode for hand controllers like FRED, DT 100 etc.

DAISY II Digital Set

- In Uhlenbrock FRED Mode the four function keys of a FRED Hand controller can have four locomotive addresses assigned. All FREDs in this Mode receive the same four locomotive addresses for keys f1 to f4. These locomotives then occupy up to four Slots.
- Some of the center's settings can be made by LNCV programming. The part number is 65 200 and the Module address is hard coded to 1 and cannot be changed!
- A firmware update of the center can be done in combination with a PC via USB LocoNet-Interface (Part No. 63 120).

1.2 Connections

The DAISY II Digital center has connections for a mainline, a programming track, a reversing loop relay, and also LocoNet-T for LocoNet devices, LocoNet-B for LocoNet boosters and a socket for the power supply.



The programming is for programming DCC decoders. In running operation it is without power and it must not be connected to the mainline.

1.3 Display of Operating States

red LED off - green LED on

Track power switch on
(normal operating condition)

red LED on - green LED off

Track power switch off
(stop-key pressed or track short circuit, or decoder programming active)

red LED on - green LED blinking

Overtemperature

red LED blinking - green LED off

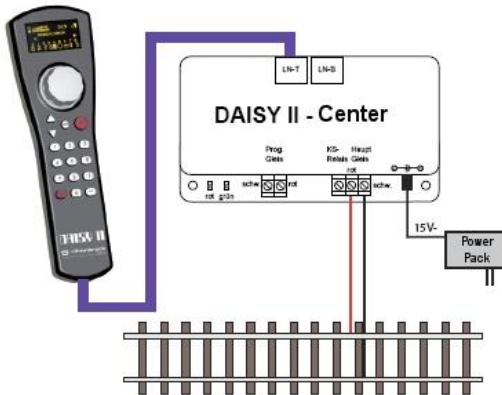
Low voltage on LocoNet-T power supply
(Overload on LocoNet-T)

red LED off - green LED blinking

Center in LocoNet programming mode

1.4 Putting the DAISY II Digital Set into Operation

First of all connect all the components according to the diagram.



Now switch on the operating power by plugging the power pack into the power outlet. A switchable power board is an advantage in this case. The green control LED lights up and the locomotive mode is displayed in Hand controller. A short description for running the first locomotive can be found in chapter “2.3 Quick Guide” and here in the section “Calling up Locomotives”.

1.5 LocoNet

Connect the DAISY II Hand controller to the LocoNet-T socket using the included spiral cable. A 5-way distributor (Part No. 62 250) can be connected to this socket for connecting additional LocoNet devices such as further DAISY II Hand hand controllers, DAISY II Radio Master LN, Feedback modules, LocoNet Switch modules, IB-Control II, USB LocoNet-Interface etc. A supply current of 500mA is available for the devices connected to the LocoNet-T socket. If the current is insufficient then a LocoNet Power Injector (Part No. 63 100) can be used to provide an additional 500 mA.

To the LocoNet-B socket you exclusively connect LocoNet-B devices with their own power supply unit. These are specifically Uhlenbrock boosters Power 2, Power 4, Power 7, Power 8, the DAISY II center in booster mode, and also the RadioMaster LN+DCC (Part No. 66 410). As booster for N - 0 scale we recommend the Power 4 (Part No. 63 240) and for track gauges 0 - II the Power 8 (Part No.63 280).

All devices that are programmable via the LocoNet can be programmed by DAISY II Hand controller using LNCV programming. For this read the corresponding section in the device’s operating manual.

1.5.1 FRED Mode

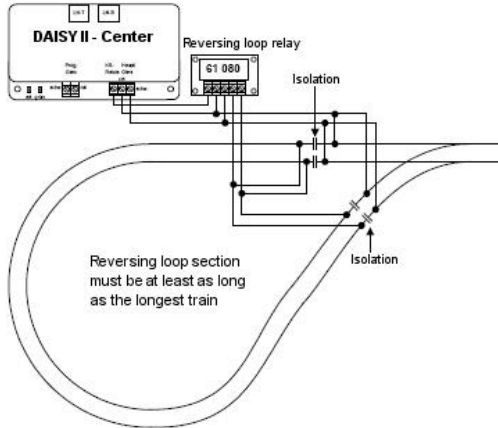
The center supports the Uhlenbrock FRED Mode with 4 addresses. All FREDs in this mode receive the same addresses for keys f1 - f4 from LNCVs 81..84 in the center, when they are connected with the LocoNet.

These locomotives occupy up to four slots which are then occupied until the next power down.

If the addresses are changed by LNCV programming the centre will restart when leaving LNCV programming mode, which causes a new slot assignment.

1.6 Connecting a Reversing Loop

Since a digital 2-rail system is still polarized a short circuit will result if a reversing loop is automatically traversed. The simplest way to solve this problem is to install a reversing loop mechanism. This mechanism is already integrated into the DAISY II center. As the polarity switch, a reversing loop relay (Part No. 61 080) must be installed as shown in the following diagram.



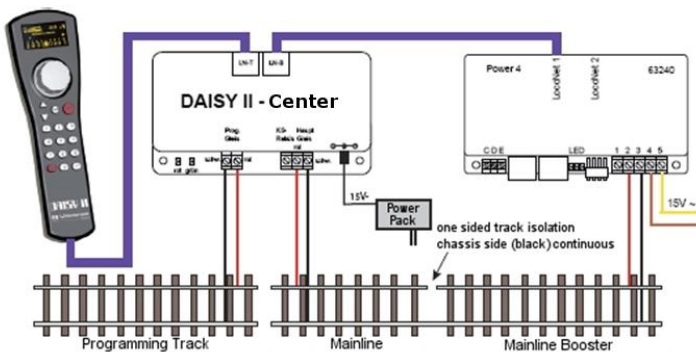
Connection diagram for a reversing loop relay

1.7 Booster

When using several trains the power consumption must be considered. The center is able to deliver a maximum of 2 Ampere. This 2 Ampere is the maximum current permitted for all consumers on the mainline.

On average (depending on the scale) one can count on a power consumption of 0.5A per train.

Therefore if more than 4 trains are to be run simultaneously then the track must be divided into a number of sections. These track sections are isolated on one side with the chassis (black) remaining connected. Each additional track section must be powered by its own booster. Naturally each booster must have its own transformer.



Connection diagram for a booster

IMPORTANT:

When installing a booster it must always be remembered that the maximum current it can deliver is suited to the track and the vehicles. In short, the booster must suit the scale so that in the event of a short circuit no damage will occur.

Gauge N - 0 → Power 4 (Part No. 63 240) and Scale 0 - II → Power 8 (Part No. 63 280).

1.8 Technical Data (Center)

- Power Supply: Switch mode device Input: 240 V 50 Hz, Output: 15 V= / 2 A
- max. load mainline output: 2 A
- max. load Programming track output: 250 mA
- max. load LocoNet-T: 500 mA
- Housing Dimensions: 104 x 58 x 33 mm

2. DAISY II Hand Controller

The DAISY II Hand controller is the control device for the DAISY II Digital center. It is connected to LocoNet-T socket on the center with the enclosed spiral LocoNet cable.

2.1 Description

With the DAISY II Hand controller one can control all locomotives, all solenoids and the routes in the DAISY II Digital center. Together with the DAISY II Digital center DCC decoders and LocoNet components can be programmed with the hand controller. The DAISY II Hand controller offers the corresponding input menus for this.

It can also serve as an additional controller for all Intelliboxes, and the SystemControl 7, TwinCenter and Piko PowerBox.

The most important driving and switching function of the digital center can therefore be attained.

2.2 Characteristics

Large, high resolution Display

The high visibility Display has a Size of 38 x 20 mm with a resolution of 128 x 64 Pixel and makes detailed representation of information in clear text or as symbols.

Night design

The Display and the keys have backlighting with which you can also see during the night phase when using an IntelliLight.

Locomotive mode

All locomotives can be controlled using the large rotary throttle control. This intelligent throttle control without end stops automatically taking over the saved speed of any newly selected locomotive it takes control of. Both DC and AC throttle modes are available.

A locomotive symbol, the locomotive name, the locomotive address, the speed and the actual driving direction are shown in the display.

The light and 8 additional special functions can be directly switched with the number keys. In DCC operation up to 24 special functions are available and can be accessed in three groups per locomotive address.

Solenoid mode

With DAISY II 2048 DCC solenoids can be control. Groups of 8 solenoid addresses each are accessible directly with the number keys. The display of switch status is achieved with symbols of a turnout position.

Route mode

As long as the DAISY II Digital Center has routes programmed they can be executed with the hand controller, in Route mode.

Large Database

Several locomotive data records can be entered into an empty locomotive database. Here locomotive symbols, addresses, names and symbols for the special functions can be entered. More the 30 locomotive symbols and more than 80 special function symbols are available.

LocoNet

The LocoNet connection of the hand controller makes DAISY II a permanent companion around the layout. It can be separated from the LocoNet at any time and plugged back in at another location. The displayed information will then be restored.

Help function

The context sensitive Help function makes the manual almost redundant. You get help to match your operation automatically. If this help is no longer required it can be simply turned off.

Non-volatile Memory

All settings that have been implemented in the DAISY II are saved in non-volatile memory and will be available even after the device is switched off and back on again.

Hand Controller Lock (Key lock)

The functionality of the hand control can be limited to controlling a locomotive and switching the track power on and off. All other functions as well as the [lok]-key are deactivated in this condition, making it possible to only fully control the current locomotive and also switch the track power off and on.

Updateable System-Software

After power up the DAISY II Logo and software version will be briefly shown in the display. The DAISY II system software can be updated anytime by using its interface to the digital center. These can be found on our internet site www.uhlenbrock.de.

Transferable Locomotive Data Records

The database can be read from one DAISY II Hand controller and written to another hand controller via the USB-LocoNet-Interface and a PC. The Software (Daisy Tool) required for this can be downloaded from our internet site www.uhlenbrock.de. A number of locomotive and function symbols can also be loaded with the Daisy Tool.

2.3 Quick Guide

Important! *Only use this quick guide at the beginning when you are trying out the DAISY II. Please read the entire manual to familiarise yourself with all the options and functions of the device.*

Using the device

Connect the DAISY II Hand controller to the LocoNet-T socket of the digital center using the included coiled LocoNet cable.

After switching on, it will momentarily display the start logo and software version.

The advantage of the LocoNet is that cable lengths of up to 100m are possible on DAISY II Hand controller, resulting in a large operating radius.

Preset

The DAISY II throttle is configured to AC- throttle mode by default.

Calling up Locomotives

- Press [lok]-key
- Enter the desired locomotive address using the number keys

- Confirm the entry with the [lok]-key or with the [-]-key

Locomotive control

- With a clockwise rotation of the throttle knob the speed increases.
- The speed decreases with an anti-clockwise rotation of the throttle knob.
- When the locomotive is stationary pressing the knob will change the travel direction.

Light switching

Key [f0] switches the light on or off.

Special function switching

The locomotive's special functions can be controlled with the number keys.

- The [0] key always switches the locomotive lights (F0).
- The keys [1] to [8] switch special function F1 to F8 in its basic state.
- If the [up]-key is pressed then keys [1] to [8] operate special functions F9 to F16
- After pressing the [up]-key they operate special functions F17 to F24.
- If the [up]-key is pressed a further time the functions F1 - F8 are switched again.
- The [down]-key sets the special function range back by one group of eight.

Changing data of individual locomotives

- Press [mode]-key
- Select the "Change loco data" submenu with Number key [5]
- Select the locomotive address whose data is to be changed with Number key [1]
- Then activate the desired settings for this locomotive address

Turnout switching

In solenoid mode the locomotive name, speed and direction of the actual locomotive are displayed. The locomotive can still be controlled by the throttle.

- Press the [mode]-key
- Select the "Solenoid" submenu with Number key [2]
- The number keys now switch solenoid addresses. Key [1] switches the solenoid with the base address shown in the address field. Keys [2] to [8] switch the solenoid with the following addresses.
- With every operation of number keys [1] to [8] the solenoid is switched in the opposite direction.
- The state is shown in the display by the associated symbol.
- If key [-] is pressed then a new base address can be entered with number keys.
- The [stop/delete]-key deletes the last entered digit.
- The entered base address can be accepted with the [-]-key.
- The [up] and [down] keys change the actual base address by +8 and -8 respectively.

2.4 Overview of Commands

Important! Use this brief description only if you need quick information. Please read the entire manual to familiarise yourself with all the options and functions of the device.

Switch track power off

- [stop/delete]- key

Switch track power on

- [stop/delete]- key

Selecting a loco by Address

- [lok]- key + Address entry + [lok]- or [-]-key

Selecting a loco by Name

- [lok]- key + turn the throttle + [lok]- or [-]-key

Changing Speed

- Turn the throttle

Changing travel direction

- For stationary loco press the throttle knob (AC- Mode)

Emergency stop of the locomotive actually being controlled

- Press the throttle knob

Switching the Light function

- Key [0] switches the light on or off

Switching Special functions F1 - F8

- Number keys [1] - [8]
- Switch on functions are shown with the associated symbol

Switching Special functions F1 - F24

- [up]- [down]-keys select the function range
- Number keys [1] - [8]
- Switch on functions are shown with the associated symbol

Select Device Mode

- [mode]-key
- Select with keys [1] - [6]

Change Solenoid Mode key assignment

- [-]-key
- Enter base address
- [-]-key
- Key [1] switches the base address
- Key [2] to [8] switch the following addresses

Change Route Mode key assignment

- Press [up] [down]-key to select route range 1- 8 or 9 – 16

Programming mode for Locomotive decoders or LocoNet Components

- [mode]- key
- [4]-key "PROGRAMMING"
- Keys- [1] to [4] select programming and complete programming
- Exit with the [mode]-key, or [lok]-key directly back to the locomotive mode

Change Basic Settings

- [mode]-key
- Key [5] "Settings"
- Keys- [1] to [5] select setting and enable
- Leave with [mode]-key or [lok]-key directly back to Loco mode

Controller Lock (Key Lock)

The functionality of the hand controller can be limited to controlling a locomotive and switch the track power off and on. All other functions as well as the [lok]-key are deactivated in this mode. Literally it is only possible to control the current locomotive and its functions and the track power can be turned off and back on with the [stop/delete]-key. The display shows the lock symbol when the keyboard is disabled.

- [mode]-Key
- Key-[0] Hand controller is locked
- [mode]-Key
- Key- [0] Hand controller is free again

Display Software version

- [mode]-Key
- Key- [9]
- the Software version and the Serial number of the hand controller are displayed for approx. 4 seconds

2.5 Technical Data (Hand controller)

Connection

LocoNet socket

Power consumption from LocoNet

Normal operation: 25 mA

Dimensions

200 x 60 x 40 mm

2.6 The Operating Elements

2.6.1 Overview of the operating Elements



Display

Display with informationen about locomotive address, locomotive symbol, locomotive name, speed and direction, state of the locomotive special functions or for the just selected operating mode, e.g. in solenoid mode shows the turnout status.

Throttle

Continuous rotating encoder for setting the speed, changing direction and emergency stop of the locomotive, locomotive data record selection, selecting character position and selection of characters in locomotive name.

mode

Selection of operating mode. 1 = locomotive mode, 2 = Solenoid mode, 3 = Route mode, 4 = Programming mode, 5 = Change locomotive data mode, 6 = Configuration mode

lok

Enter locomotive selection or back to locomotive mode from every Menu

up / down

In locomotive mode, change the special function blocks

Light - F1 - F8, Light - F9 - F16, Light - F17 - F24

In solenoid mode, changes base address

+8 or -8 respectively

In route mode, changes base address

+8 or -8 respectively

In the Basic Settings Menu changes various parameters

Number Keys

Number keys 0 - 9, for address entry and switching in the various modes, selection of device modes and submenus

stop / delete

Switches track power off and on, deletes the last entered digit or a locomotive data record

Enter

Confirms an entry

Takes over a locomotive data record in the "Change loco data" Menu

Confirm the entry of an address and exit from locomotive, solenoid, and route modes

2.6.2 The Display

The DAISY II display offers a representation of yellow on black background with a size of 38 x 20 mm and a resolution of 128 x 64 pixels. It has a clearly organized structure, which shows the symbol for current device mode, as well as the locomotive or base address in the upper part. In the central area the basic information of the currently controlled locomotive and in the lower area, depending on the mode, the switching functions.



This three section display provides a precise overview of the current state of the locomotive.

2.6.3 The Throttle

In locomotive mode, locomotives can be called up to be controlled by the throttle.

Locomotive control also works in solenoid mode and route mode.



Rotating the throttle serves to change the speed of the locomotive. Pressing on the throttle serves as emergency stop of the actual locomotive and, when in AC – throttle mode (Factory setting), to change the direction.

2.6.4 Using Menus

The DAISY II Menu can essentially be accessed with the [mode]-key.

The [mode]-key switches the device mode over. When it is pressed the main selection menu which shows all device modes appears. These are consecutively numbered 1 - 6 and are called up with the corresponding number keys.

2.6.5 Entering Numbers

If during the normal operation of the device the entry of number is required, e.g. a locomotive address or a base address, then this is done with the number keys. As soon as a digit key is pressed the input is completed and after that confirmed with the [↵]-key. The digit can be deleted anytime with the [stop/delete]-key.

3. Basic Settings Menu

The Basic Settings of the DAISY II can be changed with a simple Menu and are then saved by the device in non-volatile memory.

The Basic Settings Menu is entered by pressing the [mode]-key and then selected from the main “Settings” menu by pressing the number key [6].

The Basic Settings menu offers the following items:

1 = Language	3 = Help	5 = Switch off time
2 = Brightness	4 = Throttle	6 = Routes

To exit the Basic Settings Menu press the [mode]-key again.

3.1 “Language” Menu

The language for the text in the display can be selected from the following languages:

- German
- Dutch
- Catalan
- Italian
- Polish
- English
- Spanish
- French
- Czech

The preset is “German”.

The [1] can be used to change the language. The language is selected with the [up]- and [down]- keys and confirmed with the [↵]-key.

3.2 “Brightness” Menu

The brightness of the display can be configured. There are 15 brightness levels available.

The brightness can be changed with option [2]. The brightness is changed with the [up]- and [down]- keys. The brightness shows the actual numeric value. Once the value is set it is confirmed with the [↵]-key.

3.3 “Help” Menu

In the “Settings” Menu and “Change loco data” a small help window is faded in for each step.

Option [3] can select this function and switched off or on with [up]- and [down]- keys. To accept the desired setting use the [↵]-key

3.4 “Throttle” Menu

For the DAISY II throttle you can select whether it is to operate in DC or AC mode.

It is preset to AC controller in the factory.

Option [4] selects this function and the [up]- and [down]-key are used to select the desired mode. After the selection is reached use the [.] -key to confirm it.

AC Throttle Mode

The AC Throttle Mode is set up to control locomotives like the AC transformers in 3-rail systems.

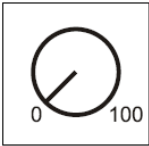


Figure 3.41 Principle of an AC throttle

In this operating mode the speed increases by turning the knob to the right and decreases by turning the knob to the left.

When either the maximum speed or the zero speed is reached further rotation in the same direction of the knob has no effect. The maximum speed or zero speed then remains.

The direction is changed by lightly pressing on the control.

If the reversing switch is activated while the vehicle is running the vehicle will first stop and only then switch the direction over. It depends on the decoder data format if this causes an emergency (Motorola, DCC) or stops using the setup deceleration (Selectrix).

DC Throttle Mode

The DC Throttle Mode controls the locomotives as is common in the 2-rail DC systems.

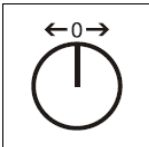


Figure 3.42 Principle of a DC throttle

In DC operating mode a right turn of the control knob, starting from speed step zero, will move the locomotive in a direction. When the control is turned back the speed is reduced until the loco stops. A further turn to the left will cause the locomotive to accelerate in the opposite direction.

If the maximum speed of the loco is reached further turns in that direction has no effect.

In this operating mode a light pressure on the control knob will cause the vehicle to stop as an emergency stop.

3.5 “Switch Off Time” Menu

In order to protect the hand controller display it can turn itself off automatically after a configurable amount of time.

To reactivate the controller the [lok]-key must be pressed.

With option [5] the switch off time can be changed. The switch off time is changed using the [up]- and [down]-keys in 8 second intervals. The maximum switch off time is 248

seconds. If the switch off time is set to 0 the display will not be switched off during operation. When the value is set it is confirmed with the [↵]-key.

3.6 “Route” Menu

The DAISY II Digital Set has a route buffer for up to 16 routes.

In this Menu it is possible to specify which center the hand controller is connected to. The feedback address and status with which each route is triggered can also be specified.

With Option [1] the route number (1 – 16) whose data is to be change can be entered. The number is entered using the number keys and confirmed with the [↵]-key

With option [2] the step (1 – 10) within the route can be entered. The number is entered with the number keys and confirmed with the [↵]-key.

With option [3] the solenoid address for the step 1 – 10 in the route is entered. The address is entered with the number keys and confirmed with the [↵]-key.

In option [4] the [up]- and [down]-keys select between “red” and “green” for the particular solenoid address selected and the [↵]-key confirms it.

With the [0] key the route menu can be exited. The selected route is automatically saved.

The [ok]- or [mode]-key exists for the Basic Settings Menu.

4. The Loco mode

In the locomotive mode locomotives can be called up and controlled. The locomotive mode can be accessed from any menu by pressing the [lok]-key, or if the mode key is pressed, then in the following menu the “loco” menu is selected with the number key [1].

Control of the speed and direction of the locomotive can also be done in solenoid and route modes.

4.1 Operating Elements

Throttle

Continuous rotating encoder for setting the speed and direction and emergency stop of the locomotive, selecting locomotive data record, symbol position and symbols in the locomotive name.

mode

Selection of operating mode. Selection of locomotive mode, Solenoid mode, Route mode, loco data change and configuration mode

lok

Enter the locomotive selection or back to the locomotive mode from any Menu.

up / down

In locomotive mode changing the special function blocks, Light - F1 - F8, Light - F9 - F16, Light - F17 - F24 In Solenoid mode change the base address by +8 or -8 respectively. In route mode changes the base address +8 or -8 respectively. In the configuration menu changes various parameters.

Number Keys

Number keys 0 - 9, for address entry and for switching in various modes. Selecting the device mode and selecting submenus

stop / delete

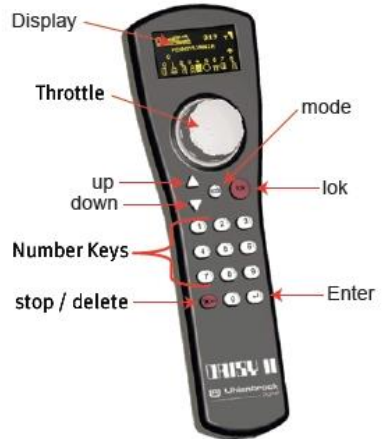
Switching track power off and on, deleting the last digit entered or a locomotive data record

Enter

Confirming an entry

Transfer a locomotive data record in the “Change loco data” menu

Input an address and lock in the the locomotive, solenoid and route mode



4.2 Loco addresses and Loco Names

An individual locomotive in a digital control system is selected by an address. This is a sequence of digits which marks the individual decoder which is installed in the locomotive.

In order to simplify the locomotive selection every locomotive address can be given a symbol and an individual locomotive name. Once the allocation is made it permanently remains in the DAISY II locomotive database. With each new locomotive selection it can be selected from the database by its respective name.

How to set up a locomotive data record is outlined in the “The Change Loco data mode” chapter (Chap. 7).

4.2.1 Loco selection

If a vehicle is to be controlled by the DAISY II then it must be called up under its decoder address or under its designated name.

In the locomotive mode the locomotive is selected by pressing the [lok]- or [-]- key. By turning the throttle a locomotive can be selected from the database (if the record has been entered). If the desired locomotive is found the selection is confirmed by pressing the [lok]- or [-]- key.

If the desired locomotive is not found in the list the address can be entered using the number keys. Here the last entered digit can be deleted with the [stop/delete]-key and the entry can be confirmed with the [lok]- or [-]- key.

4.3 Throttle

The throttle serves to change locomotive speed and direction. The speed is displayed by speed step and speed bar. The direction is displayed by a direction arrow. If this arrow is pointing upwards the locomotive is running forwards. If this is pointing down the locomotive is running backwards. The DAISY II rotary throttle automatically registers the saved speed of a locomotive when it is called up.

The throttle can operate in AC or DC throttle mode (see Chapter 3.4).

4.4 Light and Special functions

The number keys on the hand controller can be used to switch the locomotive and function decoder's light and special functions F0 to F24.

Key [0] always switches the locomotive light (F0).

In the base setting keys [1] to [8] switch special functions F1 to F8.

If the [up]-key is pressed keys [1] to [8] will switch special functions F9 to F16.

Pressing the [up]-key once again will change to controlling F17 to F24.

If the [up]-key is pressed another time functions F1 - F8 are switched again.

The [down]-key can change the special function range back again.

The display shows the special function symbol and representation of its state. From the symbols it is then possible to determine if the function is switched on or off. Which symbol is to be used for the individual special function can be specified in the corresponding locomotive data record. If a locomotive which does not have a record in the database is called up by its address, the standard symbol set is used.

4.5 Double Traction

If two locomotives are to be coupled together, for example, to pull a heavy load, then they must receive the same driving instruction simultaneously. In the hand controller the addresses of both locomotives are loaded into a double traction so both are controlled by a single controller at the same time.

If the key sequence [lok] - [up] is entered in locomotive mode a traction locomotive can be connected to the current locomotive (base locomotive). This traction locomotive is then either called numerically by its address or with throttle control from the database. After the selection the process is concluded with the [-]-key, a "D" will appear in front of the address of the base locomotive (Doppeltraktion). If the traction locomotive is called an "S" (slave) will appear in front of its address. Special functions of the traction locomotive can be controlled here independently of the base locomotive. The speed and direction of the traction locomotive can now not be changed independently.

By calling up the base locomotive the traction can be cancelled with the key sequence [lok] and [down].

4.6 Calling up the last loco

DAISY II remembers the last locomotive called. If for example a simple shunting process is to be carried out between the current and previously used locomotive, the previously used locomotive need not be recalled numerically or from the database. To simplify the locomotive switching press the [lok]-key, immediately followed by the [mode]-key so the previous locomotive can be controlled directly. In this way you can now switch back and forth between two locomotives.

4.7 Loco dispatching

If a vehicle that is being controlled by a DAISY II is to be taken over by another controller that has no option for entering an address (e.g. FRED hand controller from Uhlenbrock, BT-2 hand controller from Digitrax), then the locomotive address must first be placed into the dispatch memory. Following that, hand controllers without address input capability can take over this address. Please check the manual for the particular hand controller to learn the combination of buttons required to read the address from the dispatch memory after the locomotive was "dispatched".

With the key sequence [lok] – [stop/delete] – [lok] a called up locomotive can be dispatched. This locomotive is now in the dispatch memory and can be taken over by any hand controller.

5. The Solenoid mode

With DAISY II you can switch 2000 DCC solenoid addresses. Groups of 8 solenoid addresses can be directly controlled with the number keys. Display of the address state is shown with a switch state symbol.

In solenoid mode the locomotive name, the speed and direction of the locomotive currently under control are displayed and the locomotive can be controlled further.

5.1 Selecting Solenoid mode

The solenoid mode is called up by entering [mode]-[2].

Now eight solenoid addresses can be controlled with keys [1] - [8] in the block of number keys, with which the state of the solenoid is changed each time the particular key is pressed, from red to green or vice-versa.

5.2 Switching a solenoid

Keys [1] - [8] of the number keys switch solenoid addresses. Here key [1] controls the solenoid with the address specified in the base address field. Keys [2] - [8] switch the solenoids with the subsequent addresses. If the base address is 1, the eight keys switch solenoids 1 to 8. If the base address is for example, 47, then the 8 keys switch solenoid addresses 47 to 54.

If the [↵]-key is pressed then a new base address can be entered with the number keys. The [stop/delete]-key deletes the last digit entered. The entered base address can be accepted with the [↵]-key.

The [up]- [down]- key will shift the actual base address by +8 or -8 respectively.

Each solenoid is represented by a switch symbol in the lower line of the display. The switch state shows the actual switch status (branch for red or straight for green).

6. The Route mode

With DAISY II up to 16 routes in the DAISY II center can be switched. Groups of 8 routes each are directly controlled by the number keys. An active route is displayed by a turnout symbol with changing state indication.

In route mode the locomotive name, the speed and direction of the actual locomotive is displayed and the locomotive can still be controlled by the throttle.

6.1 Selecting Route Mode

The route mode is activated by pressing [mode]-[3].

Now eight routes can be executed by keys [1] - [8] with the number keys.

6.2 Triggering Routes

Number keys [1] - [8] activate the routes. Key [1] executes the route with the address shown in the base address field. Keys [2] - [8] switch the following routes. If the base address is 1, the the eight keys switch routes 1 to 8. If the base address for example is 12 then the eight keys switch routes 9 to 16.

If the [←]-key is pressed the base address can be changed using the number keys. The [stop/delete]-key deletes the last entered digit. With the [←]-key the base address can then be confirmed.

Using the [up]- [down]-key the actual base address is changed by +8 or -8 respectively.

For how to enter execution commands for routes refer to chapter 3.6 "Route" menu.

7. The “Change loco data” Mode

If the “Programming” mode is selected, the subsequent menus can be used to program DCC locomotive or function decoders, or LocoNet components.

7.1 Selecting Programming mode

The route mode is activated by pressing [mode]-[4].

Now the number keys [1] – [4] can be used to select the desired programming procedure.

1 = LOCO ADDRESS – PG. (reading and programming locomotive address)

2 = CV – PROG. TRACK (CV programming on the programming track)

3 = CV – MAINLINE (CV programming on the mainline)

4 = LNCV – LOCONET (LNCV programming for LocoNet modules)

7.2 Reading/Programming Locomotive address

If a locomotive with a DCC decoder is placed onto the programming track and the Menu “LOCO ADDRESS – PG.” is called up, then the locomotive address can be read and programmed.

By pressing key [1] the actual locomotive address can be read out.

After a few seconds the read locomotive address is displayed after the “LOKADR.:”.

If the programming menu is exited by pressing the [lok]-key, the locomotive address is assigned direct to the throttle control.

To program a new locomotive address key [3] must be pressed. Now the desired address, between 1 and 9999, for the locomotive can be entered. This entry is confirmed with the [-]-key. To program press key [2].

The result of the programming attempt will be displayed after a few seconds, on the bottom line.

“ PROG: OK “ – programming proceeded without error

“ PROG: ERROR “ – programming error occurred

“ PROG: NO LOCO “ – no locomotive on the programming track

“ PROG: SHORT “ – Short circuit in the locomotive or on the programming track

If the programming menu is exited by pressing the [lok]-key, the locomotive address is assigned directly to the throttle control.

The programming menu can be exited with either [lok]- or [mode]-key.

7.3 CV Programming on the Programming Track

If a locomotive with a DCC decoder is on the programming track and the “CV - PROG. TRACK” is selected then all CVs (Configuration variables) in the 1 - 1024 range can be programmed. The description of individual CVs and their value range are outlined in the manual for the decoder.

After pressing key [1] the number of the CV to be processed can be entered. The entry is confirmed with the [-]-key.

The actual value of the CV is now read and displayed after “2= VAL.:”.

Now press key [2] and enter the desired value for this CV. Confirm the entry with the [-]-key. The programmed value is now saved automatically.

The result of the programming attempt will be displayed after a few seconds, on the bottom line.

“ PROG: OK “ – programming proceeded without error

“ PROG: ERROR “ – programming error occurred

“ PROG: NO LOCO “ – no locomotive on the programming track

“ PROG: SHORT “ – Short circuit in the locomotive or on the programming track

The programming menu can be exited with either [lok]- or [mode]-key.

7.4 Programming on the Mainline (POM)

The locomotive with a DCC decoder whose CVs are to be programmed, must be placed on the mainline. All other vehicles that have a different locomotive address, can remain on the mainline. During the running of trains, for example the start and braking inertia of individual vehicles can be quickly corrected.

It “CV - MAINLINE“ Menu is selected all CVs in the 1 - 1024 range can be programmed. As a rule the locomotive address cannot be programmed on the mainline. For precise information read the manual for the locomotive decoder.

After pressing key [1] the number of the CV to be processed can be entered. The entry is confirmed with the [↵]-key.

Now press key [2] and enter the number of the CV. The entry is confirmed with the [↵]-key.

Now press key [3] and enter the desired value for the CV. The entry is confirmed with the [↵]-key.

The bottom line of the display now shows that the programming has been sent “POM SENT”.

CVs cannot be read on the mainline. Whether a mainline programming was successful can only be determined by testing the locomotive.

The programming menu can be exited with either [lok]- or [mode]-key.

7.5 LocoNet Programming

LocoNet Modules are programmed by LocoNet Configuration variables (short LNCVs). These LNCVs determine the configuration and operation of the module and can have different meanings in the various Modules.

The description of individual LNCVs, as well as the connections of the Modules are outlined in the respective manual.

If the layout has several modules of the same type then each module needs to be programmed with its own individual module address so it knows which module is being addressed during the programming procedure.

Each new module has a particular ex factory module address. These can be found in the respective description. The module address of every module is found in LNCV 0. If an LNCV is to be processed then key [1] must be pressed. Now the part number for the module is entered (e.g. 65200 for the DAISY II Center).

Since all part numbers have five digits and end with a “0”, the “0” is already entered for the last digit. The entry is confirmed with the [↵]-key.

Now press key [2] and enter the module address. The entry is confirmed with the [↵]-key. The connected module is placed into programming mode. LNCV 0 (module address) is automatically read and its value displayed.

Should the connection with the module fail a corresponding error message appears in the display: "MODUL NO RESPOND".

Now press key [3] and enter the LNCV number. The entry is confirmed with the [↵]-key. The actual value for the LNCV is displayed on the bottom line, after "4= VAL.:".

Now press key [4] and enter the desired value for the LNCV. The entry is confirmed with the [↵]-key. Programming is now automatically completed.

The result of the programming attempt will be displayed after a few seconds, on the bottom line.

" PROG: OK " – programming proceeded without error

" PROG: ERROR " – programming error occurred

" PROG: NO ANS. " – connection with the module could not be established

The programming menu can be exited with either [lok]- or [mode]-key.

Possible settings for the DAISY II Center are found in the LNCV Table in the Appendix.

8. The “Change loco data” Mode

The “Change loco data” Mode is reached by pressing the [mode]-key in the main menu and in the following menu selecting “Change loco data” option with key [4].

The hand controller next shows a small help window in which the most important keys are explained.

By entering the next selection key the help window is faded out again.

If no help is wanted then the setting menu can be switched off (see Chap. 3.3).

8.1 Change loco data

Keys [1] - [4] select the item that is to be changed.

Firstly select the locomotive address for which the data is to be changed with key [1]. The address is entered with the number keys and confirmed with the [↵]-key.

With option [2] the locomotive symbol can be changed. The symbol is chosen from the symbol list using the [up] and [down]-keys and the [↵]-key confirms the selection.

With option [3] the locomotive name can be changed.

The cursor position for entering the first symbol is selected by rotating the throttle control.

Then the throttle control is pressed.

Now the first symbol can be selected by rotating the throttle control. To input a number the corresponding digit key can also be used. The [stop/delete]-key produces a blank.

If the throttle is pressed again this symbol is accepted and the cursor shifts to the next position.

If all symbols for the locomotive name have been entered the entire locomotive name is set to the locomotive buffer by pressing the [↵]-key.

With option [4] the locomotive function is selected.

In this submenu the function symbols of every locomotive special function 0 - 24 can be assigned. Furthermore you specify if the function is to be a switch or a pulse function.

Switch function: With each key stroke the function “switches on” and “switches off”.

Pulse function: if the key is pressed and held the function is “switched on” and when the switch is released the function is “switched off” again.

Next with option [1] you specify if all special functions are preset with the standard symbols or as switch (UNI), or if the special function is to be assigned its own symbol (MULTI).

The [up] or [down]-key can select one of the two options and the [↵]-key is used to confirm the selection.

If “MULTI” is selected you can now use option [2] enter the function number (0 - 24), whose data is to be changed. The number is entered with the number keys and confirmed with the the [↵]-key.

With option [3] the function symbol can be changed. The symbol is selected from the symbol list with the [up] and [down]-keys and confirmed with the [↵]-key.

With option [4] the switching type of the function key can be changed.

The switching type is selected with the [up] or [down]-key and confirmed by the [↵]-key.

Pressing the [0]-key exits the submenu.












If the changed data record is to be accepted and saved the loco data menu is exited by pressing the [-]-key.












With the [stop/delete]-key one of the loco data records in this menu can be deleted.












Using the [lok]- or [mode]-key the menu may be exited without change or accepting the record.

8.2 Special function symbols

The previous chapter outlined how Special function symbols are assigned to special function numbers in the locomotive data record. Here is a small excerpt of the symbols that are available and their intended meaning (not obligatory). Altogether there are more than 80 Special function symbols available.

	Preset: no Symbol
	Light
	Sound
	Bell
	Horn
	Whistle
	Smoke generator
	Power Pickup
	High beam
	Tail Light
	Interior Light

	Driver cabin lighting
	Uncoupler
	Tail Light
	Start/Brake Inertia
	Brake Squeal
	Driver cabin - Rear
	Driver cabin – Front
	Diesel motor
	Doors Opening
	Hook Down
	Hook Up

	Interior Light
	Magnet
	Move right/left
	Move up/down
	Conductor Whistle
	Shunting gear
	Telex coupling
	Turn left
	Turn right
	Mute Sound
	Light front and back

Appendix

Some settings for the center can be configured by LNCV programming. The part number is 65 200 and the fixed (cannot be changed) module address is 1.

LNCV Table

LNCV	Description	Value Range	Factory default
0	Module Address (cannot be changed)	1	1
1	Center operates as a center (0), Center operates as booster (1)	0 - 1	0
2	Startup time for the Booster operation in 0.5s Steps	0 - 255	30
6	auto. Restart in 0.5s increments, 0=no auto. Restart on.	0 - 255	0
43	RailCom [®] CutOut Length (0=no CutOut)	0 - 70	62
44	Overall data format 0=DCC 14, 1=DCC 28, 3=DCC 128	0 - 3	2
45	Purging time = Value * 16 * 0.5s, 0=no purging	0 - 255	0
46	Minimum solenoid switching time (20ms increments)	0 - 255	5
47	Maximum solenoid switching time (20ms increments)	0 - 255	100
48	Pause between on and off of a route command (20ms increments)	0 - 255	10
49	Pause between two route commands (20ms increments)	0 - 255	11
81	FRED Uhlenbrock Mode: Address for FRED f1-key	0 - 9999	0
82	FRED Uhlenbrock Mode: Address for FRED f2-key	0 - 9999	0
83	FRED Uhlenbrock Mode: Address for FRED f3-key	0 - 9999	0
84	FRED Uhlenbrock Mode: Address for FRED f4-key	0 - 9999	0
100-109	Route 1, Step 1 (LNCV 100) to 10 (LNCV 109)	10 - 20483	0
110-119	Route 2, Step 1 (LNCV 110) to 10 (LNCV 119)	10 - 20483	0
120-129	Route 3, Step 1 (LNCV 120) to 10 (LNCV 129)	10 - 20483	0
...180-189	Route 9, Step 1 (LNCV 180) to 10 (LNCV 189)	10 - 20483	0
...250-259	Route 16, Step 1 (LNCV 250) to 10 (LNCV 259)	10 - 20483	0

Minimum and maximum solenoid switching time:

The switching pulse that is released when a solenoid key is pressed normally lasts as long as the key remains pressed. In order ensure that even with an extremely short pulse the switching action will still occur and that with an excessively long activation of the key the solenoid is not damaged, there is a minimum and maximum switching time. In factory default setting, the switching times are set to a minimum 100 ms (0.1 Sec.) and maximum 2000 ms (2 Sec.).

Note: In DCC decoders only the switching time of solenoid decodes that are not set to permanently on, can be configured.

Purging: Sets the time of the delay which has to pass from the last instruction until a locomotive address is removed from the refresh cycle (only for experts).

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