

LocoNet-Display 63 450

With model clock

1. Description

1.1 Operation

The LocoNet display serves as a universal display for the model railway layout:

- for monitoring the driving conditions of locomotives,
- for monitoring solenoids and feedback modules and for the display of their status,
- as a locomotive number display, for locomotives which are equipped with a LISSY transmitter and then indicate, on which track of the layout it is at the time
- to display the inputs of IRIS infrared remote controller, which does not possess own display
- as model clock, which can be adjusted to each timing scale or timetable scenario.

Up 16 Display items can be pre-configured and how the display changes when switching a solenoid by pressing a key.

1.2 Connection

Connect the LocoNet display, using the enclosed LocoNet cable, to the LocoNet T or LocoNet B output of the Intellibox or TwinCentre or to the LocoNet socket of another digital control centre.

If the supplied cable be to short, you can find further cables, distributors and couplings for building LocoNets, in our catalogue.

1.3 Configuring the Display

LocoNet devices are configured using LocoNet Configuration variables (LNCVs). These LNCVs can be programmed with the assistance of the Intellibox (starting from software-Version 1.3), the IB-Control (starting from version 1.55) or the TwinCentre (starting from version 1.1). Since the display can be only used, if it is meaningfully configured, we will first describe the programming of LNCVs.

1.3.1 Calling up a LocoNet display

- Connect the module to the LocoNet.
- Place the Intellibox (starting from software-Version 1,3) into the Basic Settings menu, using the [menu] and [mode] keys
- Scroll through the menu with [↓] Key up to the "LocoNet Prog." menu option.
- Press the [→] Key:

```
LocoNet Prog. :  
Art.-Nr. : . . . . .
```

- Enter the module's article number (in this case 63450) and press the [↵] Key
- Enter the module's address (in the case a of new module that is the 1) and press [↵] Key.

```
LN Prog. : 63450  
Module adr: . . . . .
```

The upper line is indicates the module's article number and valid module address. On the lower line the number of the LocoNet CV (in this case "0" for the

```
LNPr 63450-00001  
LNCV: . . . . 0 = . . . . 1
```

module address) and its currently set to a valid value (in this case 1).

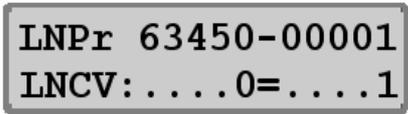
Important

Each module requires a module address for programming, so that the center knows, which module is being referred to. The factory setting of a LocoNet display is address 1. If further displays are to be connected to a center, they must have other module addresses. A valid address is in the range 1 to 65534. To confirm that your LocoNet display is addressed correctly, it displays "Prog mode".

1.3.2 Reading and programming of a LocoNet module

Just as with DCC Loco decoders the behavior of the LocoNet display is setup via different Configuration variables (CVs). In contrast to Loco decoders, these CVs are not programmed via the rails, but via the LocoNet.

- After the module has been called up (see chapter 1.3.1) the Intellibox display shows:



LNP r 63450-00001
LNCV: 0 = 1

- The cursor flashes under the 0.
- Enter the number of the LocoNet CV to be programmed
- Press the [←]-key
- The Intellibox will read selected CV. The value is displayed to the right in the lower line of the display.
- Use the [→] key to move the cursor to the right and use numeric keys to enter the desired value for this LNCV.
- By pressing the [↵]-key the new value is programmed.
- With the [←]-key go back to select another LNCV
- With the [←]-key go back to select another LocoNet display

- Or leave programming altogether by pressing with the [menu] key.

Like with other programming using your Intellibox, numerical values marked by the cursor can be incremented or decremented by the [+] and [↓] keys.

1.3.3 The universal address 65535

Using the universal address, as the name already implies, you can call up all LocoNet displays.

Since the universal address is not a 'real' address, with which different LocoNet displays can be addressed, it may only be used in order to call displays, whose individual address is not known. For this only that particular display may be attached to the LocoNet. If the display is then called, the programmed address can be read from LNCV 0.

This is how it's done:

- Press [menu] key
- Press [mode] key
- Using the [↓] key scroll to the "LocoNet Prog." option
- Continue with the [→] key
- Enter the item number 63450
- Enter the universal address 65535
- Press [↵] key
- The units individual module address will be read from LNCV 0 and displayed.

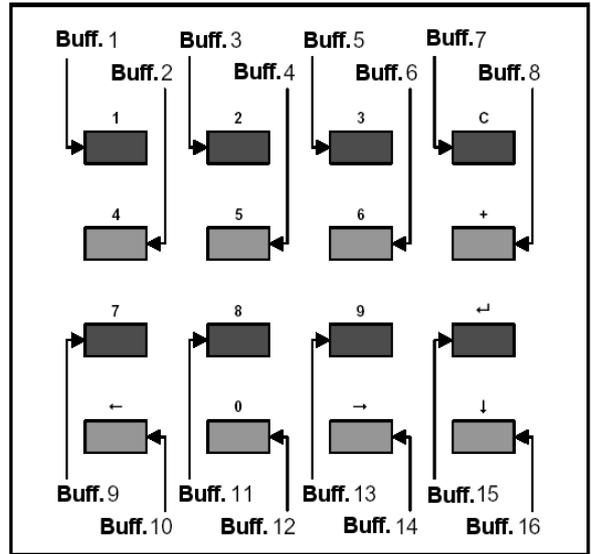
2. Configuring

2.1 Display Memory

16 different display buffers can be configured for the display. The configuration of each buffer is done using two LNCVs. Changing between the individual display modes is done using simple turnout switching commands.

For this the top left key pair of the Intellibox, operating in keyboard mode, is assigned the address, which was registered as "start address for switching the display" in LNCV 33 of the module. The factory default setting is the solenoid address 200. The description, of how to change the key assignment of the Intellibox, is in the Intellibox manual in the chapter to "Changing keyboard mode key assignment".

The 16 different indicator buffers can then be accessed as follows:



To configure of the indicator buffer use the following LNCVs:

LNCV	Display buffer	Key	Function
1	1	1	Indicator mode select
2			Address for indicator mode
3	2	4	Indicator mode select
4			Address for indicator mode

LNCV	Display buffer	Key	Function
5	3	2	Indicator mode select
6			Address for indicator mode
7	4	5	Indicator mode select
8			Address for indicator mode
9	5	3	Indicator mode select
10			Address for indicator mode
11	6	6	Indicator mode select
12			Address for indicator mode
13	7	C	Indicator mode select
14			Address for indicator mode
15	8	+	Indicator mode select
16			Address for indicator mode
17	9	7	Indicator mode select
18			Address for indicator mode
19	10	←	Indicator mode select
20			Address for indicator mode
21	11	8	Indicator mode select
22			Address for indicator mode
23	12	0	Indicator mode select
24			Address for indicator mode
25	13	9	Indicator mode select
26			Address for indicator mode
27	14	→	Indicator mode select
28			Address for indicator mode
29	15	↩	Indicator mode select
30			Address for indicator mode
31	16	↓	Indicator mode select
32			Address for indicator mode

The code number for the desired indicator mode is entered into the LNCV for the indicator mode.

Some indicator modes need an additional address. e.g. for the locomotive monitoring the address of the of locomotive to be supervised.

2.2 Indicator Modes

The display has ten different indicator modes, as follows:

Indicator Mode	Description
1	Locomotive monitoring with speed step and display of all special functions
2	Locomotive monitoring with display speed step and change of special functions
3	Locomotive monitoring with display of all special functions and the speed in per cent
4	Locomotive monitoring with display of the change of special functions and the speed in per cent of
5	Display of Solenoid status
6	Display of feedback messages
7	Display of LISSY system messages
8	Display of IRIS remote controller
9	Model clock
10	Set Time and Weekday

To each indicator mode the following apply:

Indicator Mode	Display name	Address	Meaning
1-4	LO	1-9999	Address of the locomotive that is to be monitored
5	MA	0	All turnout changes are displayed
		1-2041	Starting with the programmed address 8 turnouts can be monitored
6	RM	0	All changes in Feedback messages are displayed
		1-2033	Starting with the programmed address 16 Feedback modules can be monitored
7	LI	0	All changes of LISSY receivers are displayed
		1-4095	The LISSY receiver with this address is monitored
8	IA-ID	1-4	A channel of an ISIR remote controller can be monitored: 1=A, 2=B, 3=C, 4=D
9	CL	0	Display the clock
10	CL	0	Clock setting

e.g. if key 3 is to monitor, locomotive with address 100 in the mode "monitoring with speed step and display of all special functions", then the LNCV 9 for the indicator buffer 5 must be set to 1 (indicator mode) and LNCV10 must be set to 100 (address value).

e.g. If key 8 is to be able to select the model time, then LNCV 21 for indicator buffer 11 must contain the value 9 (indicator mode).

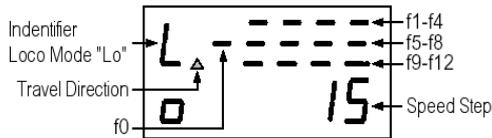
3. The Displays

On power up the LocoNet-Display shows the greeting message:

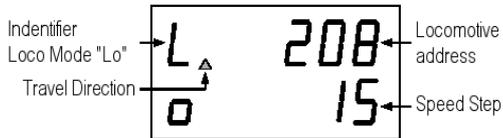


3.1 Locomotive monitoring with Speed step and Special functions

Display mode 1, displays the driving direction and the state of all special functions f0-f12:

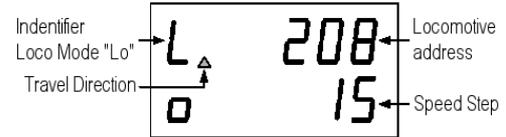


Every 10 seconds the upper line will be briefly change from the special functions display to the locomotive address:

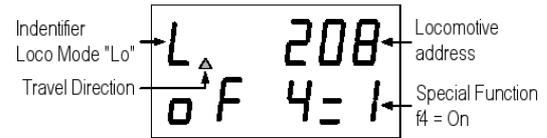


3.2 Locomotive monitoring with Speed Step display and indication of the changes of special functions

In display mode 2 the device displays the locomotive address, the driving direction and the current speed step:

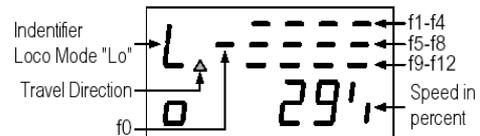


Should a special function be changed it will be briefly indicated on the display:



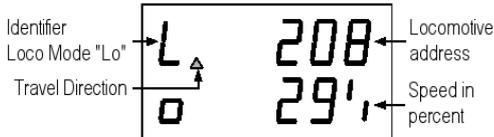
3.3 Locomotive monitoring with Speed indication in percent and display of all special functions

Display mode 3, displays the driving direction, the speed in per cent and the state of all special functions to f0-f12:

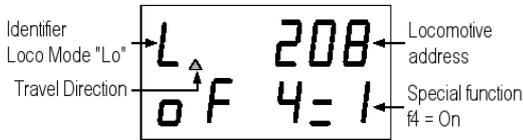


3.4 Locomotive monitoring with Speed indication in percent and indication of the changes of special functions

Display mode 4, displays the driving direction, speed in per cent and the locomotive address

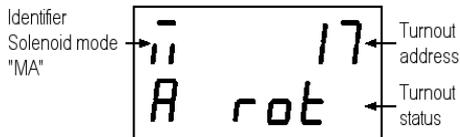


Should a special function be changed, then the change is indicated briefly:

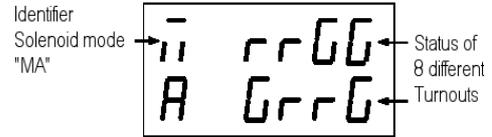


3.5 Solenoid status

In Display mode 5 the status of solenoids is displayed. If the address value of the indicator buffer is set to the value of 0, then the display shows the address and the current condition of the last solenoid that changed:



If the address value of the indicator buffer is set to a value between 1 and 2041, the display indicates the condition of 8 solenoids. The display begins at the top left with the status of the solenoid, whose address is programmed in the indicator buffer. In the following in the display positions the status of the next 7 addresses is indicated:

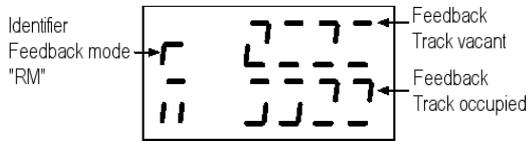


3.6 Feedback status.

Display mode 6 shows the status Feedback modules. If the address value of the indicator buffer is set to the value of 0, the display indicates the address and the current condition of the last feedback message:



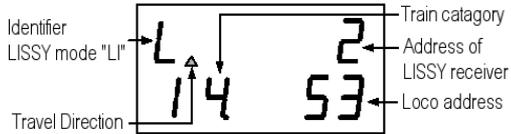
If the address value of the indicator buffer is set to a value between 1 and 2033, the display shows the status of 16 feedback modules. The display begins at the top left with the status of the feedback module whose address is programmed the indicator buffer. The following locations will display the status of the next 15 feedback modules:



3.7 Display of LISSY information

Display mode 7 displays feedback from the LISSY system.

If the address value of the indicator buffer is set to value 0, the display indicates the message of the most recently sent LISSY system message. The address of the LISSY receiver that sent the message, as well as address, train category and driving direction of the locomotive which passed this receiver is indicated.

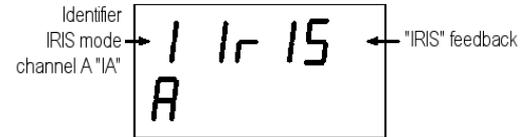


Is the address value of the indicator buffer is set to a value between 1 and 4096, the display constantly indicates the status of the registered LISSY receiver. If the LISSY receiver is programmed accordingly, the change of train category and locomotive address will result in the reporting of the true to scale speed of the passing locomotive in km per hour:



3.8 Display of IRIS remote control

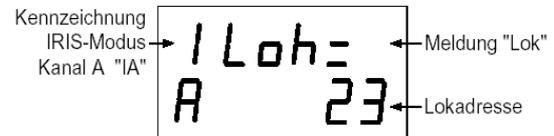
In display mode 8, iris mode, the unit displays the message to "IRIS" and the monitored channel:



The channel to be monitored is specified in the address value of the indicator buffer. Address values 1 to 4 are used for the channels A to D. While running, the display shows all operating commands issued by the remote control.

3.8.1 Locomotive address

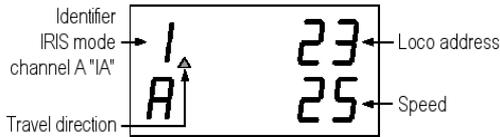
If the IRIS remote control [lok] key is pressed, then the display shows the address of the locomotive being controlled at present:



If subsequently, digit keys are pressed on the remote control, to change the locomotive address, the appropriate inputs can be read from the display.

3.8.2 Speed and driving

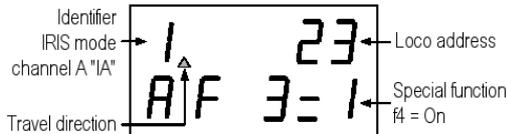
If locomotive speed or driving direction changes, the display will show:



The display will show the locomotive address, driving direction and speed step.

3.8.3 Status of Special functions

If a special function is switched using the IRIS remote control, the display indicates the designation of the special function and its current status:



3.8.4 Turnout addresses

If the [turnout] key of the remote control is pressed, the turnouts base address for the outside left pair of keys is displayed.



If turnout base address is changed at the remote control, the appropriate inputs can be read from the display.

3.8.5 Status of the turnouts

If a solenoid is switched by the remote control, the display indicates the present position of all four of the remote control currently adjustable solenoids. R = solenoid red round/off and G = solenoid green straight/on.



3.8.6 Route addresses

If the [Route] key of the remote control is operated, then the display shows:



If subsequently, a route number is entered using digit keys on the remote control, then this input can be monitored on the display.

3.8.7 Status of routes

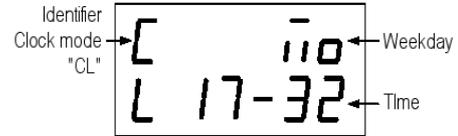
If a route is selected on the remote control, then, like in the route mode of the Intellibox the processing of the route can be read from the display.



The display shows the route number with a bouncing bar before it. This will continue until the route is fully processed by the Intellibox.

3.9 Model time indication mode

In display mode 9 the model time is displayed. The weekday and the time are shown:



The LocoNet display begins by displaying specified starting time (see configuration of the model clock - starting time).

3.10 Time and Weekday adjustment

After each start, the LocoNet display begins with the time specified as starting time (see configuration of the model clock - start time programming).

In display mode 10 the indicated time for the current session can be changed.

The clock is set using digit keys of the Intellibox. If display mode 10 is selected the digit that is expecting input will flash.

First the weekday is entered. In this case 1 represents Sunday, 2 for Monday, 3 for Tuesday etc.. Following this the time can be changed.

The changes from factory setting which are made here apply only until the central controller is switched off. If the time entered in display mode 10 is to be stored as new starting time in LNCVs 37-39, then LNCV 40 must be set to 1.

The starting time of the clock can also be set directly by programming the LNCVs 37-39.

4. Configuration of the model clock

4.1 Speed

The clock can run in real time or with an accelerated interval timer. The acceleration factor for the interval timer can be programmed, by entering a value between 1 and 127 into the LNCV 36. The entered value is the factor, by which the time runs faster, e.g. a value of 10 has the effect of running the time 10 times as fast, i.e. one hour (60 minutes) in 6 minutes.

4.2 The starting time

LNCVs 37-39 can be adjusted to specify the weekday and time, which will be used when the layout is switched on. LNCV 37 contains the weekday. Here 1

stands for Sunday, 2 for Monday, 3 for Tuesday etc.. The values for the time are set in absolute numbers.

4.3 Synchronisation of more clocks on LocoNet

If several clocks on a layout are to show the model time, then one of the clocks can be setup as central interval timer and all other clocks synchronized to the time shown there. This is setup using LNCV 34.

In LNCV 35 you then set how often a synchronisation is to take place. Valid values are 1 to 255. The value represents the length of time in seconds.

For operation with Intellibox and TwinCenters the LNCVs are adjusted as follows:

Type of clock	LNCV	Address value	Meaning
Central interval timer (master)	34	1	Display is LocoNet master clock
	35	180	Synchronisation every 120 seconds
Indicator clock (Slave)	34	3	Display is LocoNet Slave clock
	35	0	Takes over the synchronisation of the master clock

5. LNCV table for the LocoNet display

LNCV	Meaning	Range of Values	Factory default
0	Module address	1-65535	1
1	Display mode for indicator buffer 1	1-10	1
2	Address value for indicator buffer 1	1-65535	1
3	Display mode for indicator buffer 2	1-10	2
4	Address value for indicator buffer 2	1-65535	1
5	Display mode for indicator buffer 3	1-10	3
6	Address value for indicator buffer 3	1-65535	1
7	Display mode for indicator buffer 4	1-10	4
8	Address value for indicator buffer 4	1-65535	1
9	Display mode for indicator buffer 5	1-10	5
10	Address value for indicator buffer 5	1-65535	0
11	Display mode for indicator buffer 6	1-10	5
12	Address value for indicator buffer 6	1-65535	1
13	Display mode for indicator buffer 7	1-10	6
14	Address value for indicator buffer 7	1-65535	0
15	Display mode for indicator buffer 8	1-10	6
16	Address value for indicator buffer 8	1-65535	1
17	Display mode for indicator buffer 9	1-10	7
18	Address value for indicator buffer 9	1-65535	0
19	Display mode for indicator buffer 10	1-10	7
20	Address value for indicator buffer 10	1-65535	1
21	Display mode for indicator buffer 11	1-10	8
22	Address value for indicator buffer 11	1-65535	1
23	Display mode for indicator buffer 12	1-10	8
24	Address value for indicator buffer 12	1-65535	2
25	Display mode for indicator buffer 13	1-10	8
26	Address value for indicator buffer 13	1-65535	3

LNCV	Meaning	Range of Values	Factory default
27	Display mode for indicator buffer 14	1-10	8
28	Address value for indicator buffer 14	1-65535	4
29	Display mode for indicator buffer 15	1-10	9
30	Address value for indicator buffer 15	1-65535	0
31	Display mode for indicator buffer 16	1-10	10
32	Address value for indicator buffer 16	1-65535	0
33	Solenoid start address for changing-of the display	1-2048	200
34	Clock mode 0 = no synchronisation via LocoNet 1 = master does not send cyclically Slot Write answers to Slot Request DATA (Intellibox, TwinCenter, DAISY, 6021-Adapter) 2 = masters answers only to Slot Request Data 3 = Slave sends nothing, synchronizes via all receivers Slot Write and Slot Read Messages (Intellibox, TwinCenter, DAISY, 6021-Adapter) 4 = Slave sends cyclically Slot Request Data and then receives the Slot data from the master	0-4	0
36	Synchronisation via LocoNet every x seconds (only valid for LNCV 34 = 1 or 4)	1-255	180
36	Clock divisors for the model train time	1-127	10
37	Weekday	1-7	2
38	Hour	0-23	8
39	Minute	0-59	0
40	Buffering of the values from keyboard input (display mode 10) in LNCV37-39 0 = does not store 1 = stores	0-1	0
41	Display brightness	0-255	255
42	Display of operation in 0,5 seconds intervals	0-255	4
43	Display time of the greeting text in 0,5 seconds intervals	0-255	4



Service

If the unit develops a defect, please send it back along with proof of purchase and a short description of the fault to address shown below, for us to repair.

Hotline

If you have any questions we are for you!

The direct line to the technician:

02045 - 858327

Monday to Friday. from 14:00 to 16:00
and Wednesday from 16:00 to 18:00

On our products are covered by a two-year warranty. When fault develops please send the unit as well as the receipt to the following address:

Uhlenbrock Electronics GmbH • Mercatorstr. 6 • 46244 Bottrop

Tel. 02045-8583-0 • fax: 02045-8584-0 • www.uhlenbrock.de