

원& Loc	oHDL	Modul	e SV Se	ettings												– 🗆 🗙
Load	SV's	Save	SV's	Print	Cor	nm po	rt I	Debug	Add	lress Li	st Ir	nfo	Langua	ige	Mode	MultiPort Central Exit
[()	2 ©	-3 ©	-4 ©	5 ©	6	-7 ©	- <mark>8</mark>	9 ©	-10 ©	©	-12 ©	- 13 - ©	-14 ©	- 15 - ©	- 16 ©	Port Definition
																Block Detection Active Low Block Detection Active High Block Detection Delay Toggle Switch Push Button Active Low Push Button Active High ☐ Direct ☑ Indirect Code Switch Point Feedback Contact 1 Point Feedback
	000		õ	0	000		õ	~	0		0		00	0	00	Outlact 2 Point Feedback Double Input Output
																Block Occupancy Block Display LocoView Blinking 0 🔂 Rate
CCCCE :	CCCCE (COOCE	COOCE	COCCE	COOCE (COOCE (COOCE	COOCE	COOCE :	COOCE	COOCE	COCCE	COOCE	COCCE	COOCE	1 - On 1 - Off Fixed Contact 2 - On Fixed Contact 4 Way Port
																1 Soft Reset 1 Hard Reset Pulse Contact 2 Soft Reset 2 Hard Reset Address
R	R	R W	R W	R	R W	R W	R W	R W	R W	R W	R W	R	R W	R	R	Read Write
Modu Sr Fix Alto	le Setti pecial F Code f emating	ngs Ports for Push g Code	Buttor for Pus	Extra Extra Is h Buttor Read	a Opcod a Opcod ns	le 1 le 2 Pic vi	ersion	0			Add	Iress [81 /	1 14		Input Status by Power-ON Check All Inputs Check Block and Point Feedbacks Check Block Feedbacks Write All
Com 4	4 - 576	00		Stat	tus:											LB version: LB USB/Blue - PR3 4.0.6

Liability disclaimer:

Use all items that can be bought and installation instructions that can be found on this site at your own risk. They have been developed for personal use, and I find them very useful. That is why I wish to share them with other model railroad hobbyists. All items and procedures have been tested and used on my own model railroad systems without causing any damage, but this does not necessarily imply that all modifications and procedures will work in any and all environments or systems. I cannot take any responsibility when items or procedures are used under different circumstances. Always use your own judgement and common sense!

LocoHDL configuration program

The main modules of the LocoHDL series using the LocoNet communication bus contain a PIC, a kind of minicomputer with limited but programmable possibilities. This chip is pre-programmed, but you still have to introduce your own functional needs. For example, with which module I control X, with which module the signal Y is commanded. You do this using the LocoHDL configuration program.

This program serves to configure in a simple manner all LocoHDL modules, such as LocoIO, LocoServo and LocoBooster. The configuration program communicates with the different modules through a serial or USB port on the PC or via Bluetooth technology with a LocoBuffer over LocoNet. The program also allows controlling trains.

Loading the program:

The LocoHDL program (LocoHDL.zip) is available on the website <u>https://www.locohdl.be</u> under menu item LocoHDL Program (left column).

Before loading the latest version of the program, it is recommended to remove the previous version(s) from your computer (program and icon).

Äfter extracting the Zip program, following lines appear in the File Explorer file.

Application Files
LocoHDL.application
setup.exe

Run the "setup.exe" program

The program will be installed on your computer as well as a start icon on the desktop



Setup configuration program:

The first time you start LocoHDL configuration program it asks to setup your com port settings.

Comm port With this button on the toolbar you can always change the settings.

1) For LocoBuffer with USB, Bluetooth or Digitrax PR3: Select "USB LocoBuffer" and the Com port.

LocoHDL Comm P	Properties	
COM4 💌	Interface © 57600 Locobuffer © 19200 Locobuffer	Info LocoBuffer V2.0 - 57600 JP3=2-3 JP1=2-3 LocoBuffer V2.0 - 19200 JP3=2-3 JP1=1-2
	C 19200 Intellibox	LocoBuffer V3.0 - 57600 JP3=OFF JP1=ON LocoBuffer V3.0 - 19200 JP3=OFF JP1=OFF
	Intellibox Basic Intellibox II C USB/Bluetooth Locobuffer	Intellibox software version 1.5 and higher: IB option: 1 Value: 3 IB option: 2 Value: 4 IB option: 5 Value: 1 IB option: 6 Value: 255
	Digitrax PR3	Intellibox Basic: Loconet interface 63120 and Module address 1 - LNCV 2 = 3
ок	Cancel	Intellibox II : 57600 Baud LocoBuffer V3.0 USB or V4.0 - automatic

<u>2) For LocoBuffer with RS232</u>: LocoBuffer has to be set in LocoBuffer mode JP3: 2-3 The baud rate on the LocoBuffer can be set with JP1. (Some older PC and Portables have problems with fast communication and then you can use 19200). Select the settings that you have set with the Jumpers and push OK.

LocoHDL Comm F	Properties	
COM4 💌	Interface 57600 Locobuffer 19200 Locobuffer	Info LocoBuffer V2.0 - 57600 JP3=2-3 JP1=2-3 LocoBuffer V2.0 - 19200 JP3=2-3 JP1=1-2
	C 19200 Intellibox	LocoBuffer V3.0 - 57600 JP3=OFF JP1=ON LocoBuffer V3.0 - 19200 JP3=OFF JP1=OFF
	Intellibox Basic Intellibox II C USB/Bluetooth Locobuffer	Intellibox software version 1.5 and higher: IB option: 1 Value: 3 IB option: 2 Value: 4 IB option: 5 Value: 1 IB option: 6 Value: 255
	Digitrax PR3	Intellibox Basic: Loconet interface 63120 and Module address 1 - LNCV 2 = 3
		Intellibox II : 57600 Baud
ок	Cancel	LocoBuffer V3.0 USB or V4.0 - automatic

3) For the build-in bufferIntellibox:

LocoHDL configuration program also works on the Intellibox software version 1.5 and higher with

interface speed 19200 bps
interface syntax LocoNet
number of stop bits 1
disable drop of CTS when entering 'stop' state

There are a few limits as no address list window.

Select 19200 Intellibox in the Interface box and Intellibox software version 1.5 or higher in the Info box and the COM port in the left input window. Then click OK.



4) For the built-in buffer in the Intellibox Basic or Intellibox II:

Select Intellibox Basic Intellibox II in the Interface box and the COM port in the left input window. Press OK.

LocoHDL Comm	Properties	
COM4 💌	Interface © 57600 Locobuffer © 19200 Locobuffer	□Info LocoBuffer V2.0 - 57600 JP3=2-3 JP1=2-3 LocoBuffer V2.0 - 19200 JP3=2-3 JP1=1-2
	C 19200 Intellibox	LocoBuffer V3.0 - 57600 JP3=OFF JP1=ON LocoBuffer V3.0 - 19200 JP3=OFF JP1=OFF
	Intellibox Basic Intellibox II	Intellibox software version 1.5 and higher: IB option: 1 Value: 3 IB option: 2 Value: 4 IB option: 5 Value: 1 IB option: 6 Value: 255
	Digitrax PR3	Intellibox Basic: Loconet interface 63120 and Module address 1 - LNCV 2 = 3
		Intellibox II : 57600 Baud
ок	Cancel	LocoBuffer V3.0 USB or V4.0 - automatic
ОК	C 19200 Intellibox C Intellibox Basic Intellibox II C USB/Bluetooth Locobuffer Digitrax PR3 57600	LocoBuffer V3.0 - 19200 JP3=OFF JP1=OFF Intellibox software version 1.5 and higher: IB option: 1 Value: 3 IB option: 2 Value: 4 IB option: 5 Value: 1 IB option: 6 Value: 255 Intellibox Basic: Loconet interface 63120 and Module address 1 - LNCV 2 = Intellibox II : 57600 Baud LocoBuffer V3.0 USB or V4.0 - automatic

Initialisation of a LocoHDL module: (only in Expert mode)

This is an initialisation of the SV registers in a bad programmed EEPROM in PIC where the address of the PIC will be unreadable. Bad data in the basis SV registers can be also corrected.

ATTENTION this operation is not without danger, so follow the following steps carefully.

Step1: DO NOT connect any other LocolO device on the LocoNet connections. The reason for this is: LocolO broadcast message are sent by the initialization. It can destroy settings of other LocolO modules.

Step2: Start the LocoHDL configuration program and _____ Push the 'Init' button



Press the 'Init PIC' button.

Configuration program

	祝 LocoHD	L Module SV I	nstellingen									×
Î	Laad SV's	Bewaar SV's	Afdrukken	Comm port	Debug	Adres Lijst	Info	Taal	Mode	MultiPort	Central	Einde

Toolbar Buttons:

Load SV's Save SV's The SV information	ation can be Saved and Loaded on your computer for each LocolO.
Exit Program exit button	
Language Different languages can be	selected
Print It is possible to print the data of t	he LocoHDL Modules.
Info Information about LocoIO Con	figuration program version
Info	
LocoHDL Module SV Configuration Program Version 4.0.6.28	Color of SV registers
info@locohdl.be	Correct SV value in PIC Correct SV value written in PIC
www.iocondi.be	X Wrong SV value in PIC
	Changed SV value X Wrong SV value from file
	X Wrong SV value
	Correct SV value from file
Program support LocolO 141 to 154 Program support LocoBooster 001 to 005	Double addresse for Servo in this Module
Program support LocoServo 100 to 108 Program support LocoRCD 200 and LocoRCD2 210, 211, 212 Program support LocoCentral 50 to 54 Program support LocoCentral 50 to 54	Unused Port address OK

Debug

This button gives a second window that displays the LocoNet packets on your LocoNet line.

Send

If you have experience with LocoNet commandos then you can send a packet to LocoNet with or without the checksum.

 \times

(This window is not available with Intellibox interface.)

3. LocoNet Monitor	x
Exit Clear GPON GPOFF GPIDLE	
837C OPC_GPON 8250001D OPC_INPUT_REP 8250203D OPC_INPUT_REP 8251001C OPC_INPUT_REP 8251203C OPC_INPUT_REP 8025016B OPC_SW_REQ 8025214B OPC_SW_REQ 8023016D OPC_SW_REQ 8023214D OPC_SW_REQ	*
Send	Ŧ

Address List . . .

- --

	Exit	Kead	Clear
	001/001	ver: 154	- LocolO .
	002/001	ver: 154	- LocolO
	003/001	ver: 154	- LocolO
	004/001	ver: 154	- LocolO
	005/001	ver: 154	- LocolO
	006/001	ver: 154	- LocolO
	007/001	ver: 154	- LocolO
	008/001	ver: 154	
	000/001	ver: 154	
	010/001	. vor. 154	
	011/001	ver. 154	
	011/001	Vel. 104	
	012/001	Ver. 104	
	013/001	Ver: 104	
	014/001	ver: 154	
	015/001	ver: 154	- LocolU
	016/001	ver: 104	- LocoServo
	017/001	ver: 104	- LocoServo
	018/001	ver: 154	- LocolO
	019/001	ver: 154	- LocolO
	020/001	ver: 154	- LocolO
	021/001	ver: 154	- LocolO
	022/001	ver: 154	- LocolO
	023/001	ver: 154	- LocolO
	024/001	ver: 107	- LocoServo
	025/001	ver: 154	- LocolO
	026/001	ver: 154	- LocolO
	027/001	ver: 154	- LocolO
	028/001	ver: 154	- LocolO
	029/001	ver: 154	- LocolO
	030/001	ver: 210	I - LocoBCD2
	031/001	ver: 210	I-LocoBCD2
	032/001	ver: 154	
	033/001	ver: 149	
	034/001	ver: 154	
	035/001	. vor: 106	LocoServo
	035/001	ver. 164	
	030/001	ver. 104	
	0377001	Ver. 107	
	030/001	Ver. 104	
	033/001	ver: 104	
	0407001	ver: 154	
1	050/001	ver: 5 - L	
	051/001	ver: 5 - I	LocoBooster
	052/001	ver: 5 - I	LocoBooster
	053/001	ver: 5 - I	LocoBooster
1			
1			
1			
- 1			

Address List

The button gives a second window that show a list of all LocolO addresses used on the connected LocoNet line.

If you click twice with the mouse on an address then are all the registers of this module will been reading.

If you hold the CTRL bottom and then click the mouse on an address then are only the module registers reading.

This window is not available with Intellibox interface.

Mode

There are two modes "Simple" and "Expert"

The "Simple" mode is the most common. This mode indicates the Gate status by a simple color code in the squares. The meaning of the colors is explained via the info button.

1	1	132	131	125	101	123	124	106	105	104	139	824	825	826	827	Adres
L	L	L	L	L	L	τl	L	L	L	L	L	L	L	τ	L	Lezen

The "Expert" mode displays the status of the gate by color code and the values of the SVs. Three additional lines appear in place of the squares: Configuration, Value-1, and Value-2.

1	1	132	131	125	101	123	124	106	105	104	139	824	825	826	827	Adres
0	0	31	31	31	31	31	31	31	31	31	31	128	128	128	128	Configuratie
0	0	65	65	62	50	61	61	52	52	51	69	55	56	57	58	Getal-1
0	0	48	16	16	16	16	48	48	16	48	16	22	54	22	54	Getal-2
L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Lezen

MultiPort This button activates the MultiPort Command test. This only works with LocolO modules and is described in detail in the LocolO manual.

🚯 LocoHD	L Mo	dule !	SV S	ettin	gs														_ _ ×
Load SV's	Sav	e SV's	P	rint	Co	mm	port	De	bug	Ad	dress	List	SV (colors	Info	Language	Mode	MultiPort	Exit
1 :	2 :	3 4	,	5	6	7	8	9	10	11	12	13	14	15	16				
ĉ				0	00	c c	00	00	c c	00	00	с с	00	00	00	Input Output		-	
	- 1			Γ	Γ	Γ	Γ	Γ	Γ	Γ	Γ	Γ	Γ	Γ	Γ	Data		_	
Mu	ltiPort	Read																	
1 : E	2 : T		1	5	6 	7 □	8 	9 111	10	11 □	12 	13 □	14 □	15	16	1⇒16 Mask □		0	
	- 1				Γ	Γ							Γ		Π	Data 🗖		0	
Mu	ltiPort	Write																	
																			Exit
Module S Speci Fix Co Alterna	etting: al Port de for sting C	s Push l Code fo	Butto Ir Pu	Г Е ms sh Bu	xtra xtra utton	Opco Opco s	de 1 de 2		Boos Servi 4-Pos	teri 3 sition	Servo		Inpu Ch Ch Ch	it Stati eck All eck Bio eck Bio	is by P Inputs ick an ick Fe	ower-ON d Point Feedba edbacks	cks	LB v	version: LB 164 - USB
Address	81 /	1	R					Pic v	ersion	150			Addr	ess 8	я /Г	1 _W			
Com 4 · 5	7600,1	n,8,1 ·	P	S	itatu	s:													3.8.0

Central This button opens the window of the control panel that controls the trains. Depending on the version or type of central unit, you may have more or fewer options.

No LocoHDL Module SV Settings	– 🗆 🗙	No LocoHDL Module SV Settings	– 🗆 🗙
Load SV's Save SV's Print Comm.port Debug Address List Info Language Mode MultiPort	Central Exit	Load SV's Save SV's Print Commit Debug Address List Info Language Mode	MultiPort Central Exit
Refresh Status New/Select Train LocoCentral Pic version 54 GC	Exit	Refresh Slot Status	GO Ext
Next Slot 3 W Setup)P	3 W	STOP
Clear Slot			
SLOT 1 0 SLOT 9 0 SLOT 17 0 SLOT 25 0 SLOT	? <u>28</u> Train	SLOT 1 0 SLOT 9 0 SLOT 17 0 SLOT 25 0	SLOT ? 28 Train
	C 128		C 128
SLOT 2 0 SLOT 10 0 SLOT 18 0 SLOT 26 0 C «	0 1	SLOT 2 0 SLOT 10 0 SLOT 18 0 SLOT 26 0	C « 0 1
	EZ CVdata		F0 ^ CVdata
SLOT 3 0 SLOT 11 0 SLOT 19 0 SLOT 27 0	P4	SLOT 3 0 SLOT 11 0 SLOT 19 0 SLOT 27 0	□ F3 □ F4
	F6 Read		
SLOT 4 0 SLOT 12 0 SLOT 20 0 SLOT 28 0 F9	F10 Write	SLOT 4 0 SLOT 12 0 SLOT 20 0 SLOT 28 0	□ F9 □ F10
	F12 F14		F11 F12
	F16		□ F15 □ F16
	F18 F20		F17 F18
	F22		□ F21 □ F22
	F26		□ F23 □ F24 □ F25 □ F26
	F28		F27 F28
SLOT 8 0 SLOT 16 0 SLOT 24 0 SLOT 32 0 F29 -> F32	2767	SLOT 8 0 SLOT 16 0 SLOT 24 0 SLOT 32 0	F29 -> F32767
	<u> </u>		- F
Com 4 - 57600 Status: LB version: L	B 165 -BLUE 4.0.6	Com 4 - 57600 Status:	LB version: LB 165 -BLUE 4.0.6

This way you see that the Intellibox central (right figure) unlike the LocoCentral (left figure) does not have the options: Setup, Next lock, Delete lock, mode D and the Circle for the current lock.

Further instructions for the LocoCentral operation can be found in the manual of the LocoCentral.

LocoHDL Module adjusting:

Assigning each module a unique configures address over LocoNet.

The LocoHDL configuration programme can communicate afterwards always with the modules, even during the service of a model layout.

Module Settings	Extra Opcode 1	Input Status by Power-ON		
Special Ports Fix Code for Push But	Extra Opcode 2 tons	C Check All Inputs C Check Block and Point Feedbacks		
C Alternating Code for P	ush Buttons			
Address 81 / 1 R	Read All Pic version 154 Loc	Address 81 / 1 W Write All	Clear	Init

LocoHDL modules contain also Sub-addresses outside the ordinary address:

- One can give a fixed address to areas in a layout and using Sub-addresses within an area.

- In a module Layout you can grant an address to the club members and then every club member can use several LocoHDL modules with several Sub-addresses.

Address (SV1) = 1 ... 79 or 81 ... 127 (80 is reserved for Locobuffer), Default = 81 after initialization. Subaddress (SV2) = 1 ... 126, Default = 1 after initialization. In total you can then talk to 15876 independent modules.

Address 81 / 1 R Read All Pic version

module where you are with in communication.

 $\mathsf{SV1}$ is the address and $\mathsf{SV2}$ is the Subadress of the <code>LocoHDL</code>

Address 81 / 1 W	Write All
------------------	-----------

You can set a new address value of the LocoHDL module and write it in the LocoHDL by press the "W" button. This new address is set to the LocoHDL module indicated in SV1 and Sub-Address in SV2. If you press "Write All" then you write the new address value and ALL other SV's in the LocoHDL module.

If you want to communicate with another LocolO module the you can put in another address value in the SV1 and/or Sub-Address in SV2 textbox.

Address	827	1 R	Read All	Pic version 0

And push the "R" button.

Address 82 /	1 🕮	Read All	Pic version 151
--------------	-----	----------	-----------------

If you have communication with the LocolO module than all textboxes are green (if the values are correct) and gives the values of the registers SV0, SV1, SV2 and the PIC version program.

If you push "Read All" you read all SV registers of the LocoHDL module. Then SV information is automatic translated to port address and function.

Clear

It clears all the SV and settings to make your window ready for a new configuration.

Fix Code for Push Buttons
 Alternating Code for Push Buttons

For push buttons you can make a choice of two methods

This setting is for ALL push buttons on the LocoHDL module together.

"Fix Code" means a push button can switch an output on or off. In other words, you will need 2 push buttons to switch an output. "Alternated Code" means that each time the button is pressed, it will alternate between switching an output on or off.

! The "fixed code" is advised, because in this case you will always be sure what will happen.

All older versions use JP1 hardware Jumper to set on and off the Input status at Power ON (check all inputs). JP1

Input status on Power-ON, after a LocoNet disconnection and on a GPON. Off

On Only input status on a GPON

Input Status by Power-ON use JP1 for this Module

Remarks:

- User of a Digitrax Command Station DB150 and Intellibox and PC users need to set JP1 On.

From LocolO 151, LocoServo 104 and LocoBooster 004 is it with the software adjustable with more options.

Only input status on a GPON

 Input Status by Power-ON Check All Inputs Check Block and Point Feedbacks Check Block Feedbacks 	(Idem as JP1 On) All Inputs give their status
 Input Status by Power-ON Check All Inputs Check Block and Point Feedbacks Check Block Feedbacks 	Blocks and Points Feedback give their status
 Ingang Status bij Power-ON Check Alle Ingangen Check Blok en Wissel Terugmeldingen 	Only Blocks give their status

Input status on Power-ON, after a LocoNet disconnection and on a GPON.

Input Status by Power-ON

- Check All Inputs
- Check Block and Point Feedbacks
- C Check Block Feedbacks

Check Blok Terugmeldingen

(Idem as JP1 Off) All Inputs give their status

Input Status by Power-ON

C Check All Inputs

Blocks and Points Feedback give their status

Check Block and Point Feedbacks C Check Block Feedbacks

Input Status by Power-ON

- C Check All Inputs C Check Pl
- Check Block and Point Feedbacks
- Check Block Feedbacks

Only Blocks give their status

Remarks:

- User of a Digitrax Command Station DB150 and Intellibox and PC users need to uncheck Input status on Power-ON.

Special Ports

The "Special Port" option gives on the First 4 ports (on J4) of a LocolO, LocoServo or LocoBuffer module the possibility to setup a special function.



Poort Settings:

Assigning the different ports a function. On the LocolO are 16 ports, on the LocoServo are 4 or 8 ports and on the LocoBooster are 4 ports that universal and independently of each other as input or output can be switched.

An extended description of the input and output can you find in the LocolO manuel under chapter "LocolO possibilities"

! RECOMMENDATION:

- If the used version of LocolO has not the option selection "Port not used", then it is been advised to define unused ports as output ports, and give them an unused address. Then you prevent that interference on the module will send out undesirable codes on LocoNet.

- Always give ports that are used as Servo output an address that occurs only once on a module.

Active Low Active High delay 32 ÷ ive Low ive High ndirect Code
edback Feedback Feedback
cy bcoView <mark>≑</mark> Rate
Fixed Contact
Pulse Contact

Hans Deloof info@locohdl.be https://www.locohdl.be

Configuration buttons:

Blinking C Rate The blinking rate can been changed between 0 and 15 When changing this setting, ALL blinking functions on this LocoHDL module will be changed.

244 Adresse

This is the address of the signal, the point, block detector, ...

This is the address of the respective port that is used in the train job control software.

According to the LocoNet specifications can signals and points have an address of 1 up to 2048. Block-system detection or push buttons has an address range of 1 to 4096.



Tooltip text gives it in accordance with address and input as at S88. Example: LocoNet address 100 = S88 address 7 and input 4





Tooltip text of a push button gives the address of signal and point which it will switch with its situation.



Tooltip text of fixed or puls contact indicates with which push button you can switch these. Example: LocoNet address 100 contact 1 = push button 199

244	Address
128	Configuration
115	Value-1
17	Value-2
R	Read
W	Write

For each port of the LocolO module with address indicated in SV1/SV2, you can read and write (using the buttons) the Configuration, Value1, Value2 register.

When the SV registers of an Output are read correctly, a test button will appear. With this test button, you can change the output to test its functioning.



LocoHDL configuration program example for LocoIO:

🔀 LocoHDL Module SV Settings — 🗌 🗙																
Load	SV's	Save	SV's	Print	Con	nm poi	rt I	Debug	Add	lress Li	st Ir	nfo I	Langua	ige	Mode	MultiPort Central Exit
	2 0	3 0	4 0	5 0	6	7 0	8	9	-10 C	0	0	0	0	0	-16 C	Port Definition Port not used
															0 1 0 0 0 1 0 0	Input Block Detection Active Low Block Detection Active High Block Detection Delay 32 ÷ Toggle Switch Push Button Active Low Push Button Active High ☐ Direct ☑ IndirectCode Switch Point Feedback
CC C	000	00	000	00	000	00	000	00	000	00	000	00	000	00	000	Contact 1 Point Feedback Contact 2 Point Feedback Double Input
Off C	Off C	Off C	Off C	Off C	Off C	Off O	Off C	On C	O ff	On O	Off C	0	0	0	c	Output Block Occupancy Block Display LocoView
		⊻ 0														Blinking 0 - Rate
CecL	• C C L	CecL	• O O E	K 000	 I I	(1)	 I 	COOL	COOL	COOL	COOL	COOL	COOL	COOL	COOL	1 - Off Fixed Contact 2 - Off 4 Way Port
0000	0000	0000	0000	0000	0000	0000	0000		0000	0000	0000	0000	0000	0000	0000	1 Soft Reset 1 Hard Reset Pulse Contact 2 Soft Reset 2 Hard Reset
164	164	165	165	167	167	168	168	169	169	170	170	241	242	243	244	Address
35	35	36	36	38	38	39	39	40	40	41	41	120	95	121	115	Configuration
49	17	49	17	49	17	49	17	33	1	1	33	16	32	16	17	Value-2
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Read
W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	Write
	le Setti	ngs —		Exter	0.000	la 1										Laud Status hu Dawas ON
C Alt	Special Ports Extra Opcode 1 Extra Opcode 2 Fix Code for Push Buttons Alternating Code for Push Buttons Check Block and Point Feedbacks Check Block Feedbacks															
Addre	Addres 81 1 R Read All Pic version 154 LocolO Addres 81 1 W Write All Clear Init															
Com	Com 3 - 57600 Status: LB version LB 164 - USB 4.0.5															

IO 1 and 2 is a red/green signal (1=red, 2= green) with address 164 IO 3 and 4 is a blinking red/green signal with address 165 IO 5,6,7 and 8 is a 4-ways signal with address 167 (168)



Railroad & Co TrainController settings.

IO 9 and 10 is a point with coils with only software pulse length

IO 11 and 12 is a point with coils with software and/or hardware pulse length

IO 13 is a push button active low that sends OPC_SW_REQ (0xB0) codes

IO 14 is block detection active high

IO 15 is block detection active low

IO 16 is a toggle switch that sends OPC_SW_REP (0xB1) codes

LocolO, LocoServo and LocoBooster extra opcode option for inputs

An Opcode is a LocoNet Command send over the LocoNet Network

🔽 Extra Opcode 1
Extra Opcode 2
E Eutro Oppode 1
Extra Opcode 1

With this button you can see an optional screen overlay that show the settings for SV51 to SV98. Enclosed there will be send an additional Direct or Indirect Command to LocoNet. The Extra Opcode 1 will send at the moment the push button is pushed.

With this button you can see an optional screen overlay that show the settings for SV128 to SV175. The Extra Opcode 2 has the same functionality as the Extra Opcode 1 but is send when the push button is released.

The Extra opcodes gives the possibility on 1 push button to give 1, 2 or 3 LocoNet commandos. Example: with pressing the push button can a point been switched, the Extra Opcode 1 can then switch a second point and at releasing the push button the Extra opcode 2 can set a green signal.





Double Input:

At "Double Input" an even input is coupled to an odd input (2 to 1, 4 to 3,..., 16 to 15).

Example with port 15 and 16, as on the picture:



- If port 16 stays low (0V), then at active coming of port 15 a Block detection code active with address of port 15 will been send on LocoNet and the Extra Opcode 1 of port 15.

- If port 16 stays low (0V), then at Inactive coming of port 15 a Block detection code Inactive with address of port 15 will been send on LocoNet and the Extra Opcode 2 of port 15.

- If port 16 stays high (5V), then at active coming of port 15 a Block detection code active with address of port 15 will been send on LocoNet and the Extra Opcode 1 of port 16.

- If port 16 stays high (5V), then at Inactive coming of port 15 a Block

detection code Inactive with address of port 15 will been send on LocoNet and the Extra Opcode 2 of port 16.

LocoHDL Module configuration for L-Booster and N-Booster

In connection with a LocoBooster you can see an optional screen overlay that shows the settings for the Booster.

船 Loo	HDL I	Module	sV Se	ttings			
Load S	V's S	Save SV	's Pri	int C	omm p	ort	Debug Address List Info Language Mode MultiPort Central Exit
	2	3	4	-5	6	7	Booster Port Definition
• •••□•••□•	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•	•	•	5 = Feedback of Booster input Port not used 6 = Feedback of Booster output Block Detection Active Low 7 = On-Off Booster output Block Detection Active High Block Detection Delay 32 ÷ Toggle Switch Push Button Active Low Push Button Active Low Push Button Active High Direct Indirect Code Switch Point Feedback Switch Point Feedback
000	000	000	000			On	Output
						0.0	Block Display LocoView Blinking 0 + Rate 1 - On 2 - On Fixed Contact 2 - Off 4 Way Port
0000	0000		0000	245 31	246 31	18 129	I Soft Reset 1 Hard Reset 2 Soft Reset 2 Hard Reset Address Configuration Value 1
R W	R W le Setti		R W	16 R W	48 R W	16 R W	STOP Value-2 Read Write
⊂ S ⊙ Fic ⊖ Al	cecial F Code I ernatin	Ports for Push g Code	Buttor for Pusi	Extra Extra 1s h Buttor	Opcod Opcod	e1 e2	 Input Status by Power-ON Check All Inputs Check Block and Point Feedbacks Check Block Feedbacks
Addre	ss 84	/ 3	<u> </u>	Read	AI	Pic v	version 5 LocoBooster Address 84 / 3 W Write All Clear Init
Com	8 - 5760)0,n,8,1	۰P	State	us:		LB version: LB 164 - USB 4.0.0

In terms of functionality the first 4 ports are identical to a LocolO.

Port 5 has been permanently set to give a feedback message indicating that the input signal of the Booster is present.

Port 6 has been permanently set to give a feedback message indicating that the output signal is OK. This means there is no short-circuit and the input signal is present. It does not necessarily mean that the Booster output signal is activated (see port 7).

Port 7 is a Fixed Contact Output which switches the Booster output ON or OFF by means of a relays. The relays will **NOT** be switched on with a fixed contact output = ON if one or both feedback are not been available or an OPC_GPOFF (0x82) or OPC_IDLE (0x85) command is received. With a "1-On Fixed Contact" or "2-On Fixed Contact" the Booster, after powering up and when receiving an input signal, will switch on the output.

With a "1-Off Fixed Contact" or "2-Off Fixed Contact" the Booster will have to be switched on by a command.

Some Port 7 possibilities:

- It can be coupled to a signal to cut the power to a specific track.

- Individual rail sections can be interrupted in case of emergency.

LocoHDL Configuration for LocoServo Module



The Servo engine can turn in an angle of 90° from Position 1 = 1 to Position 2 = 127. Position 1 and Position 2 can be set within that 90° angle, with a value of 1 to 127. The Servo engines are transferred from one position to the other by means of a "Fixed Contact" report. The transfer can be done at 4 different speeds.

9	96 LocaHDL Module SV Settings																														
	Load 37 is Save 57 is Print Communication Debug Address List 37 relians Total Language Made Mu 1 2 3 3 4 5 5 5 7 8 9 10 11 12 12 12 12 12 12 12 12 12 12 12 12													Multi	Port I	at .				<-	Loc	oS	erv	οŀ	lard	dwa	are	Ve	rsic	n 1.0 en 2.0	
	re	a	a Æ	12	E.	8	#	a a	1 <u>a</u>	10	å	12 (k)	LincoSieten		Port Deb Factoral s	odice avel				1											
Ш	_				Ser				art.						Rol Loo	OHDL	Module	sv Se	ettings												— — X
Ш	Ê.	8	F.	8	P	F	F	P	F	F	2	F			Load	SV's	Save SV	's Pr	int C	omm p	ort	Debug	Add	dress Li	st SV	colors	; Info	Lan	iguage	Mo	de MultiPort Exit
		Г	5	5	201	Fail	Paul	Pari	Pad	120	Page 1	Paci		1	[1-	2-	3	4-	5	6	7	8	9	10	11	12	13	-14-	15	16-	Port Definition
	è.	è.	è.	8	E.	- 1	- 1	- 1		1		51							Serv												Port not used
	<u>_</u>	<u>_</u>	6	12	•	-	•	•	-	•	-				2	2	2	0	PI	P	P	P	P	P	P	P	2	2	2	2	Block Detection Active Low
i.	c.	ē.	c.	6	122	122	122	122	127	122	127	122			Ë.	Ē.		Ē.	Pos1	Pos3	Pos1	Pos3	Pos1	Pos3	Pos1	Pos3	Ē	Ē			Block Detection Delay
Ш	2	8	8	12	E	-	-	-	1	1	1	٦I.			2	2	2	0									2	2	2	2	Toggle Switch
Ш				1	<u> </u>	-	-		• break	-	·	-			ò	ò	ò	õ	÷	÷	÷	÷	÷	÷	÷	÷	č	č	č	č	Push Button Active High
Ш								Ē	n	1	<u> </u>								Pos2	Pos4	Pos2	Pos4	Pos2	Pos4	Pos2	Pos4					Direct IV Indirect Code
Ш	<u>_</u>	<u>_</u>	2	12	-		-		-		-				l c	6	l e	č	127	127	127	127	127	127	127	127	lõ	Č.	l C	ě.	Switch Point Feedback Contact 1 Point Feedback
	c.	ë.	c .	6	-		-		-			_			C	0	0	0	•	•	•	•	Ī	•	•	•	C	C	С	C	Contact 2 Point Feedback
	81	8	8	18	C .	C .	0	C	C .	C	e .	0										Spe 0	ed								Dutout
	È	<u>c</u>	È.	2											С	0	0	0	1			,	-	,	<u> </u>		C	С	С	С	Block Decupancy
	è.	2	6	12															-		•		•		•		E				Blinking 0 + Rate
	È.	č.	È.	Ğ.											l o	lo	i c	ic i	C	0	0	С	C	С	С	С	Č.	č	l c	le.	1 - Off Fixed Centrel
Ш	è.	ě.	Ċ.	ě.											8	8	8	8										C		E C	2 - On 2 - Off
D	1	1	· ·			1		1		1	1	1																	Г		4 Way Port
	0			1							0				8	8	8	8									8	8	6	8	1 Soft Reset 1 Hard Reset Dulas Contact
	- 1	-	-		L.	H			L.			-			2	2	2	2									2	2	2	2	2 Soft Reset
	B	BL	L B L	l ai	L a l	Lei	L B	E	L B	E	a.	EL			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Address
	w	w	w	W	w	W	w	W	W	÷	w					0			0									0	0	0	Configuration
	Vet	la Set	inge	-		-				_																					Value-1
	ΠĒ	pe can	214		Edi	e Opea	ade 1	-	_		P In	nui Sinehua	by Economical																	0	Value-2
	8.2	Code	in Pu	hBay	VA VA	a Opea	ste 2	M 13	eren Position	Ferm	- ĉ i	neck Blas	npew ck. and Foint Feedba	she.	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	Read
Г	C M	enatr	g Doos	to Pu	nh Buda	m					_ C C	reok Bio	ok Feedbeolus		Mod		inge	W			w		W	W	W	W	W		W		WIRE
	Addexs BL/ I R Rud Al Driveran 104 Access 81 / I W WriteAl												Conside Seturings Extra Opcode 1 Input Status by Power-ON and GPON LB version: LB 164 - USB																		
	Ean-4-STATE NULL - P Sixture												Extra Opcode 2 Z Serve Check All Inputs Check And Point Exerthacks																		
											C Alternating Code for Push Buttons																				
															Address 81 / 1 R Read All Pic version 104 Address 81 / 1 W Write All Clear Init																
	Loop Some Hardware Varaian 2.1 >											Com 4 · 57600 n.8.1 · P Status: 3.8.0																			
	LocoServo Hardware Version 3.1 ->											Lonia - 57500/1.6,1 · F Status.																			

At selecting 4-Position Servo, 4 Servos to the LocoServo can be driven.

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Setting the LocoRCD module with LocoHDL utility

LocoHDL Module SV Settings																
Load S	W's S	ave SV	's Pr	int C	omm	port	Debug	j Ad	dress L	ist In	fo La	nguag	e Mo	ode l	MultiP	ort Central Exit
-1-	2-	3	4	5	6	7	8	9	10	-11-	12	13	-14	15	16	Port Definition
E.	с	c	c	с	c	с	с	c	c	c	c	с	c	с	с	Input Block Detection Active Low
₹	Г	Г	Г	Г	Г	Г	Г	Г	F	Г	Г	Г	E.	Г	Г	Block Detection Delay
																Display 0 🛨 Light intensity
155	1			1	1	1	1	1	1	1	1	1		1		Address
27	0	0	0	0	0	0	0	0	0	0	0	0		0	0	Configuration
16		0				0		0	0		0					Value-1 Value-2
R	B	B	B	R	B	B	R	B	B	B	R	B	R	B	R	Read
W	W	W	W		34/	W		W	W	W	W	W	W.	W	W	Write
Mod	le Setti	ngs			- manual	[
FI		lette		Extra	Opcod	le 1				[Inp	put Stat	us by P	ower-Ol	N		
C FR	Code Iematri	for Pusi o Code	n Burton for Par	Extra no Butto	Upcod	le 2				000	neck Al Heck Bl heck Bl	ock and ock Fee	l Point dback	Feedba s	cks	
Addre	81		R	Rea	d All Th	Pi	c versio	n 200		Add	dress	87 /	1 w	1_1	v/rite Al	Clear Init
Com	13 - 576	500,n.8,	1 · P	Stat	us:											LB version: LB 164 - USB 3.9.5

Each LocoRCD module must first be individually adjusted at address 81/1 and then put on another to work. Address (SV1) = 1 ... 79 or 81 ... 127 (80 is reserved for Locobuffer), Default = 81 after initialization. Subaddress (SV2) = 1 ... 126, Default = 1 after initialization.

To set up a first module in LocoRCD with address 81/1 port 1, then change your address to a work address for example 82/1

Then connect a second LocoRCD module with address 81/1 port 2, then change your address to a work address for example 82/1

You can work set 16 LocoRCD modules on the same work address.

The ports should follow one another within the same work address beginning with Poort1, Poort2, etc. .. Without a gate in between to let unused.

You can afterwards common change the work address on all LocoRCD if necessary. The block detection address is also in LocoRCD work address changeable.

Setting the LocoRCD2 module with LocoHDL utility

祝 Loc	路 LocoHDL Module SV Settings															
Load S	W's S	ave SV	's Pri	int C	omm p	oort	Debug	g Ado	dress Li	st In	fo La	nguag	e Mo	de N	∕lultiPo	ort Central Exit
	2 ⊂ ⊑⊙	3 © 0	4 ©	5 © O	6 © C	7 © 0	8 0 0	9 © 0	-10- ©	0	-12- ©	-13- ©	-14- ©	-15- ©	-16- ©	Port Definition Port not used Input Block Detection Active Low
V	V															Block Detection Delay 32 🛨
																Train Influenced Train Direction Change Slow down and Pull-up delay Wait Time
																Display 🔽 🕂 Light intensity
1 27 0 16 R W	27 27 0 48	1 0 0 8		1 0 0 8		1 0 0 8		1 0 0 8		1 0 0 8		1 0 0 8		1 0 0 8		Address Configuration Value-1 Value-2 Read Write
	Module Settings Extra Opcode 1 Special Ports Extra Opcode 2 Extra Opcode 2 I/O LocoView C C Fix Code for Push Buttons Signals Alternating Code for Push Buttons Signals															
Addre	ss 81	/ 1	_R	Read	All	Pic v	rsion	211	LocoF	CD2	Ad	ldress	81 /	1 \	4	Write All Clear Init
Com	8 - 5760	0,n,8,1	۰P	State	us:											LB version: LB 164 - USB 4.0.0

Each LocoRCD2 module must first be individually adjusted at address 81/1 and then put on another to work. Address (SV1) = 1 ... 79 or 81 ... 127 (80 is reserved for Locobuffer), Default = 81 after initialization. Subaddress (SV2) = 1 ... 126, Default = 1 after initialization.

To set up a first module in LocoRCD2 with address 81/1 port 1 and 2. Give both port a unique block detection port address. Then change your address to a work address for example 82/1

Then connect a second LocoRCD2 module with address 81/1 port 2 and 4. Give both port a unique block detection port address. Then change your address to a work address for example 82/1

You can work set 8 LocoRCD2 modules on the same work address. The ports should follow one another within the same work address beginning with Port 1 and 2, Port 3 and 4, etc. .. Without a gate in between to let unused.

You can afterwards common change the work address on all LocoRCD2 if necessary. The block detection address is also in LocoRCD2 work address changeable.