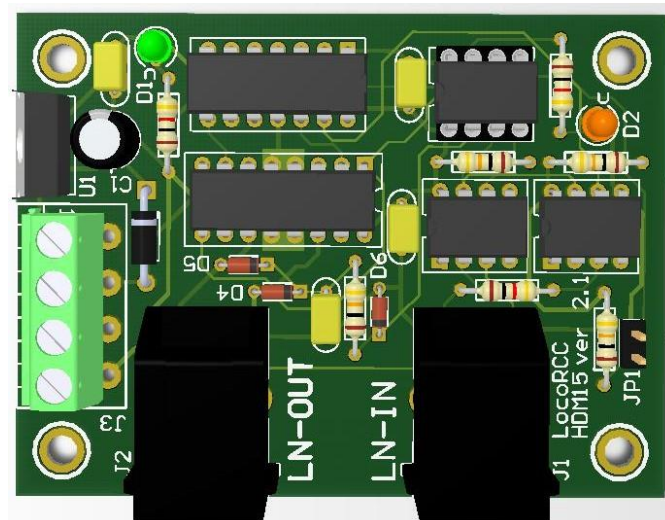


LocoRCC

Manual



HDM15

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!

HDM15 LocoRCC

This is a LocoNet Railsync power Amplifier. The LocoNet Railsync output can deliver max. 1A. This allows you to connect more hand controls and modules that their power supply taking LocoNet cable.

It is also included a **RailCom** cut-out device, activated and used with a Lenz LRC120 or the LocoRCD. There can be only one LocoRCC with active RailCom cut-out are present in a LocoNet network. The LocoRCC with RailCom cut-out can be used in conjunction with a Digital Central without RailCom cut-out ability.

RailCom

RailCom is the name of the technology of bi-directional communication developed by Lenz according to the RP 9.3.1 and RP 9.3.2 of the NMRA. RailCom allows an external device to be able to read real data transmitted from a decoder. These data can include among others: the actual speed of decoder, its load, the contents of any CV and its direction.

To enable the bi-directional features of RailCom you need these components:

1. A RailCom decoder that transmits the information.
(Lenz Gold, Lokpilot v3, Zimo MX64, Tams LD-G-32... , HDL_FD_Railcom)
2. A detector that can receive these transmissions such as the Lenz LRC120 or the LocoRCD
3. A cutout device that conditions the track for the transmission such as LocoRCC.

Bi-directional communications requires a window for the decoder to communicate in. This window can be turned on or off. The Bi-Directional activation can be put with JP1 on startup of the power supply or, subsequently, be changed in the operations mode programming (PoM).

Proceed as follows:

- Select any locomotive address on your handheld. **(Don't worry:** If a locomotive with the address used above is placed on a track while you are setting the activation, its settings will not be affected, since CV7 is a read only Locomotive CV.
- Using POM (ops mode programming), program the value 50 into CV7. This switches LocoRCC into configuration mode. The red LED of the LocoRCC shows a double-flash.
- You have 15 seconds to program the desired value (compare below) into CV7. Once set, the LED will shine constantly.

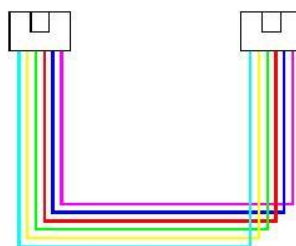
Write to CV7 Effect Explanation

CV7=50, CV7=93 Turn Bi-Directional **ON**
LocoRCC creates the Bi-Directional communication window

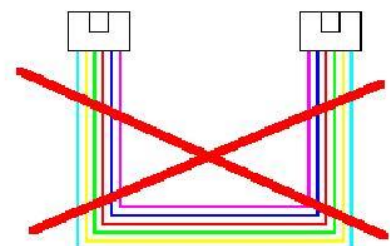
CV7=50, CV7=92 Turn Bi-Directional **OFF**
Bi-Directional Communication is off

LocoNet connection:

The connection to LocoNet is with a 6-wire cable with RJ12 connectors. Important is that on the connector on both ends of the cable the pin1 to pin1 is connected.



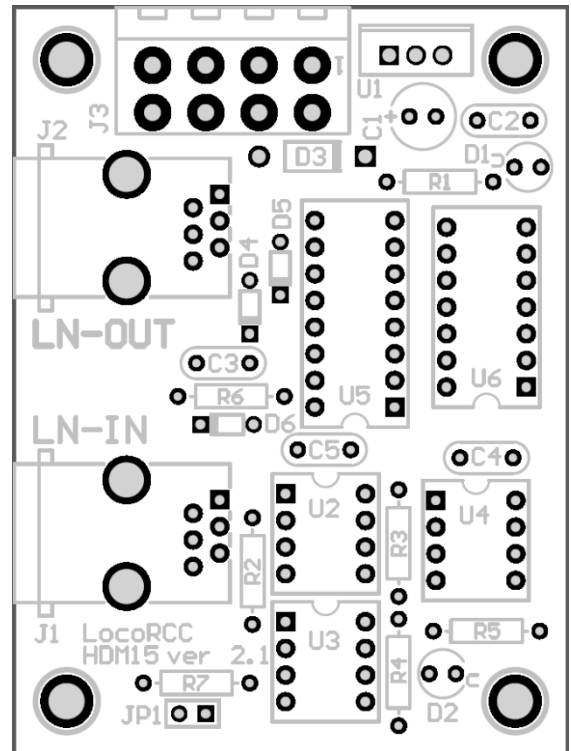
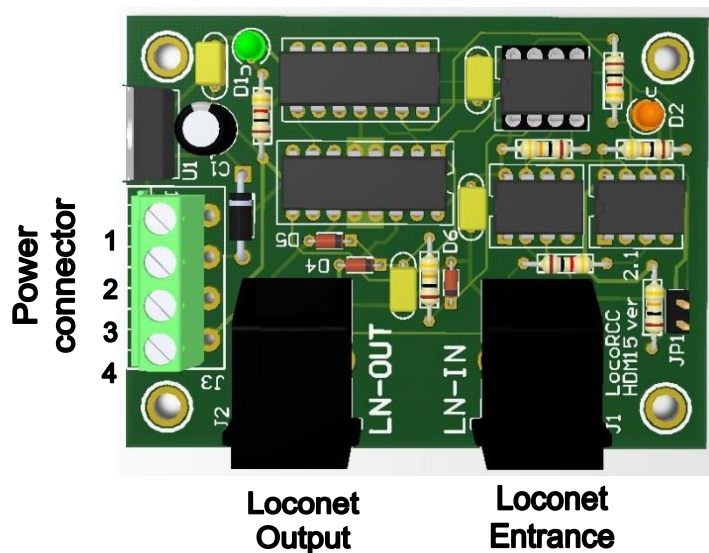
Correct



Wrong

Bill of materials for the basic driver module:

UT_DEVICE	UT_VALUE	Refdes
PCB	HDM15	
IC-socket	8 pins	for U4
Resistor	1kΩ (Brown,Black,Red,Gold)	R1, R2, R5
Resistor	10kΩ (Brown,Black,Orange,Gold)	R3, R4, R6, R7
ELCO	100μF/25V	C1
Capacitor	100nF (104)	C2, C3, C4, C5
LED Ø3mm	Green	D1
LED Ø3mm	Orange	D2
Diode	1N4001	D3
Diode	1N4148	D4, D5
Zenerdiode	BZX55C4V7	D6
Connector	RJ12	J1, J2
HDR_4	4 pins print connector (5.08)	J3
Voltage Regulator	LM7805	U1
Optocoupler	6N137	U2, U3
Power IC	SN754410NE	U5
Hex invertors	74LS14N	U6
PIC	RCC2	U4 on IC-socket



LocoNet entrance comes from the Central

Jumper setting:

JP1	Off	Turn Bi-Directional OFF	No RailCom Cut-out
	On	Turn Bi-Directional ON	RailCom Cut-out

Power connector J3 possibilities:

- Pin 1: 5V output
- Pin 2: 12V-15V DC input
- Pin 3: not used
- Pin 4: GND

Green LED:

OFF	No Power
ON	+5V Ok

Orange LED:

OFF	No Power
ON	Normal operating condition.
Flashes slowly	No Railsync on LocoNet Input
Double flashes	System is in configuration mode (after setting CV7 with value 50 in PoM mode) Program CV7 in PoM mode with the appropriate value After 15 seconds the system returns to normal operation.