

figure 1

Arduino Nano LocoNet/DCC Interface v2

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Parts List

This Interface is modular. Meaning that you only have to place and solder the components for the application that you are using. The parts list below will list the components used per application.

Power Supply	
VR1	LM7805
R20	2k2
D1	1N4003
D5	1N4004
C1	100nF
C2	10uF
C3	100nF
LED Green	3mm Green LED
PWR	Blue Connector

figure 2

i2c	
R9	4k7
R10	4k7

figure 3

LocoNet	
LM393N	LM393N Comparator
T1	BC337 NPN Transistor
R1	4k7
R2	27k
R3	39k
R4	47k
R5	150k
R6	240k
R7	1k
R8	470
D2	1N4003
D3	1N4003
LED Red	3mm Red LED
J1	RJ11 Connector
J2	RJ11 Connector

figure 4

DCC	
6N137	6N137 Opto
R11	10K
R12	10K
R13	10K
D4	1N4148
DCC	Blue Connector

figure 5

Connectors

The interface connectors are described in figure 6

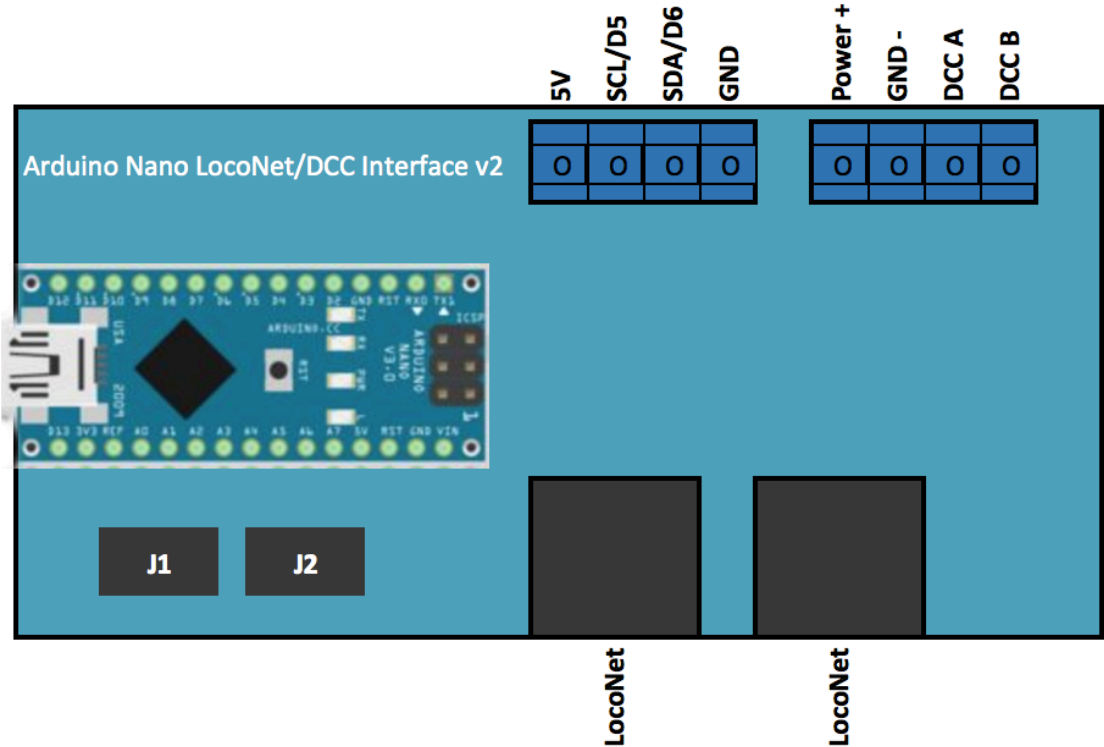


figure 6

Jumper Settings

The jumper pins J1 and J2 are used to set different usage scenarios.

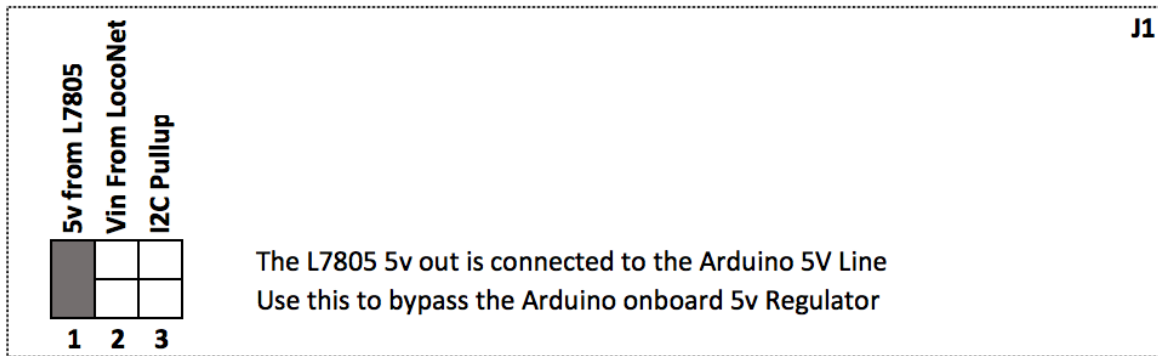


figure 7

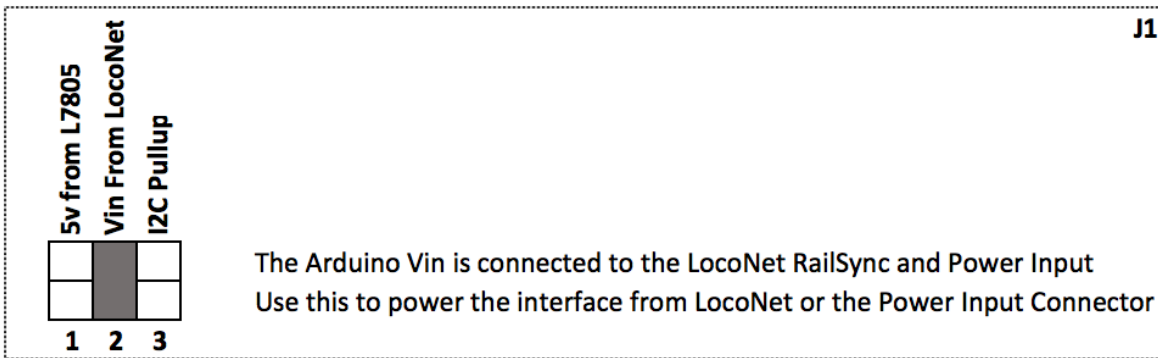


figure 8

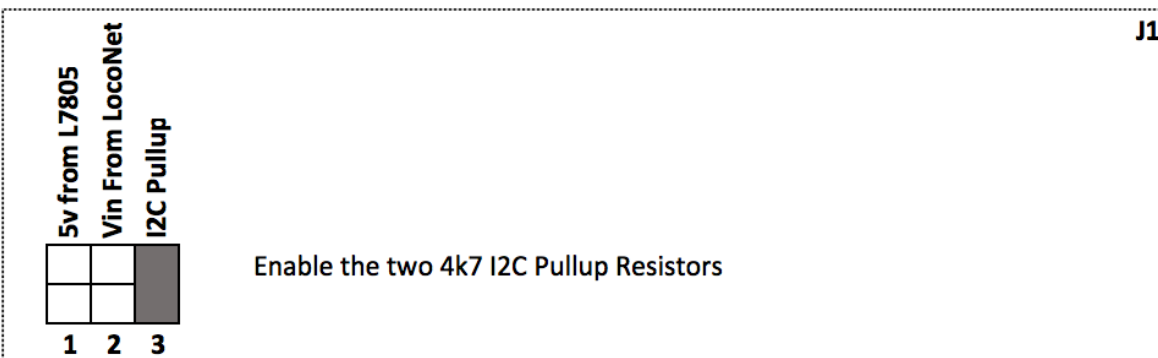


figure 9

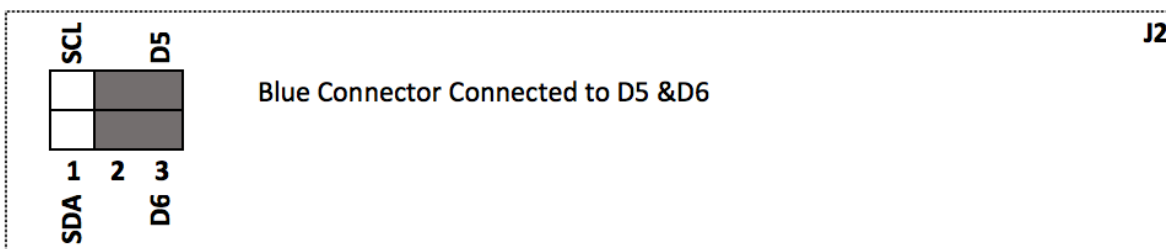


figure 10

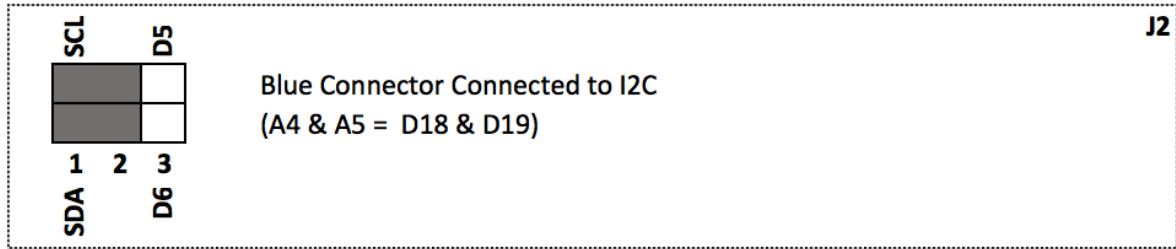


figure 11

Software

Firmware for this interface is available for download at <https://github.com/Merdeka/Arduino-ModelRail>. This firmware needs to be compiled and uploaded to the Arduino using the Arduino IDE.

Search the Curious Timo YouTube Channel for tutorials and more information.

Hardware Pin Usage

There are a few pins that are predefined for LocoNet or DCC usage. Please take care to not use the following pins on the Arduino Nano in combination with LocoNet or DCC:

- Digital pin 2 - DCC (Interrupt 0)
- Digital Pin 7 - LocoNet TX
- Digital pin 8 - LocoNet RX (ICP)

Schematics

In appendix A figure, A1 you will find the interface schematics. The schematics can also be found on GitHub: <https://github.com/Merdeka/>

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Appendix A (Schematics)

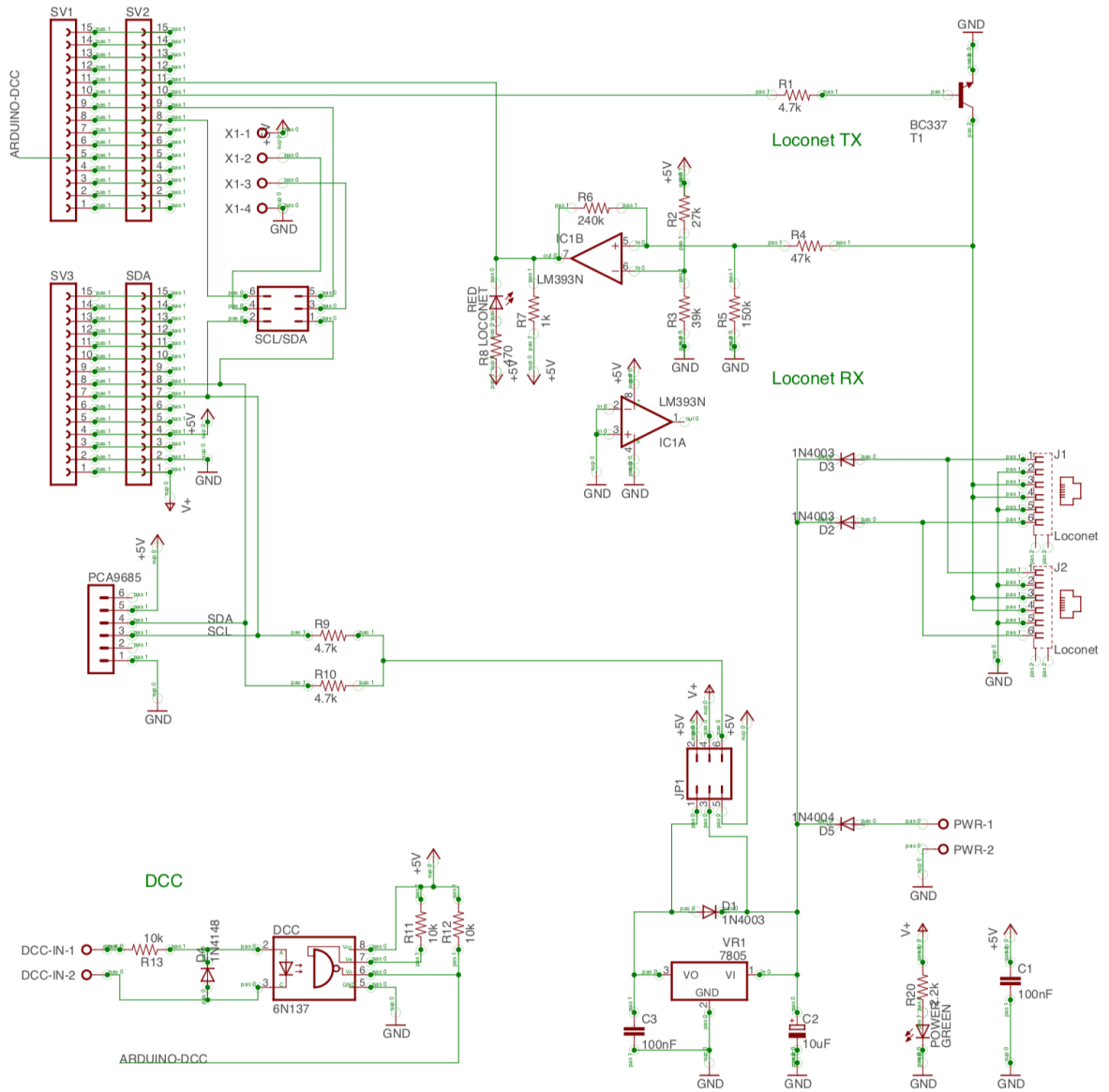


figure A1