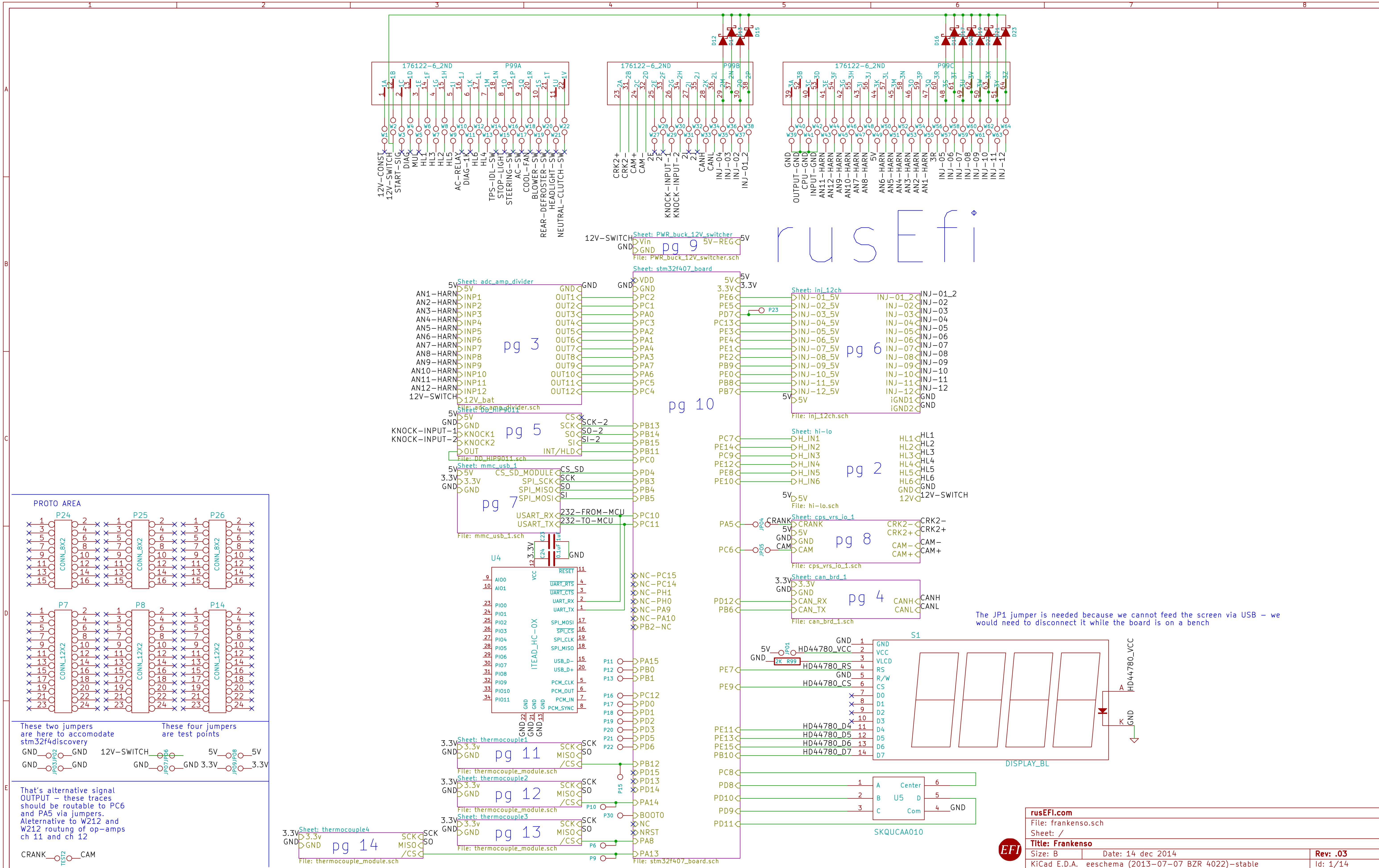
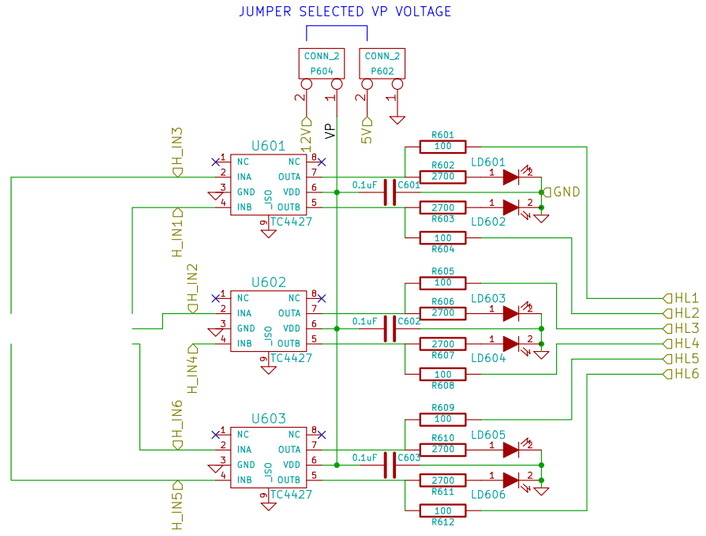


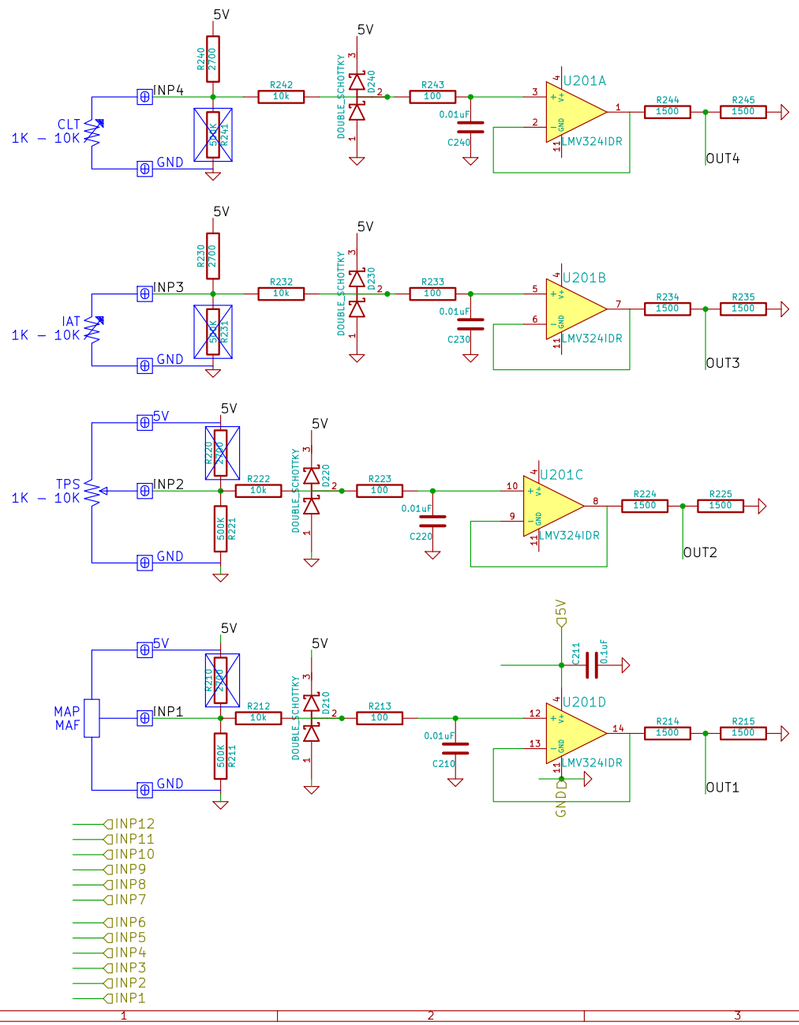
176122-6_2ND P99A
12V-CONST
12V-SWITCH
START-SIG
DIAG
MUL
HL1
HL3
HL2
HL5
AC-RELAY
DIAG-1K
HL6
HL4
TPS-IDL-SW
STOP-LIGHT
STEERING-SW
AC-SW
COOL-FAN
BLOWER-SW
REAR-DEFROSTER-SW
HEADLIGHT-SW
NEUTRAL-CLUTCH-SW
176122-6_2ND P99B
CRK2+
CRK2-
CAM+
CAM-
KNOCK-INPUT-1
KNOCK-INPUT-2
CANH
CANL
INJ-04
INJ-03
INJ-02
INJ-01_2
176122-6_2ND P99C
GND
OUTPUT-GND
CPU-GND
INPUT-GND
AN11-HARN
AN12-HARN
AN9-HARN
AN10-HARN
AN7-HARN
AN8-HARN
5V
AN6-HARN
AN5-HARN
AN4-HARN
AN3-HARN
AN2-HARN
AN1-HARN
3R
INJ-05
INJ-06
INJ-07
INJ-08
INJ-09
INJ-10
INJ-11
INJ-12
rusEfi
Sheet: PWR_buck_12V_switcher
pg 9
File: PWR_buck_12V_switcher.sch
Sheet: stm32f407_board
pg 10
File: stm32f407_board.sch
Sheet: adc_amp_divider
pg 3
File: adc_amp_divider.sch
Sheet: DD_HIP9011
pg 5
File: DD_HIP9011.sch
Sheet: mmc_usb_1
pg 7
File: mmc_usb_1.sch
Sheet: inj_12ch
pg 6
File: inj_12ch.sch
Sheet: hi-lo
pg 2
File: hi-lo.sch
Sheet: cps_vrs_io_1
pg 8
File: cps_vrs_io_1.sch
Sheet: can_brd_1
pg 4
File: can_brd_1.sch
U4
ITEAD_HC-0X
Sheet: thermocouple1
pg 11
Sheet: thermocouple2
pg 12
Sheet: thermocouple3
pg 13
Sheet: thermocouple4
pg 14
File: thermocouple_module.sch
S1
DISPLAY_BL
HD44780_VCC
U5
SKQUCAA010
The JP1 jumper is needed because we cannot feed the screen via USB – we would need to disconnect it while the board is on a bench
PROTO AREA
P24 CONN_8X2
P25 CONN_8X2
P26 CONN_8X2
P7 CONN_12X2
P8 CONN_12X2
P14 CONN_12X2
These two jumpers are here to accomodate stm32f4discovery
These four jumpers are test points
That's alternative signal OUTPUT – these traces should be routable to PC6 and PA5 via jumpers. Aleternative to W212 and W212 routung of op-amps ch 11 and ch 12
CRANK TEST2 CAM
rusEFI.com
File: frankenso.sch
Sheet: /
Title: Frankenso
Size: B
Date: 14 dec 2014
Rev: .03
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable
Id: 1/14

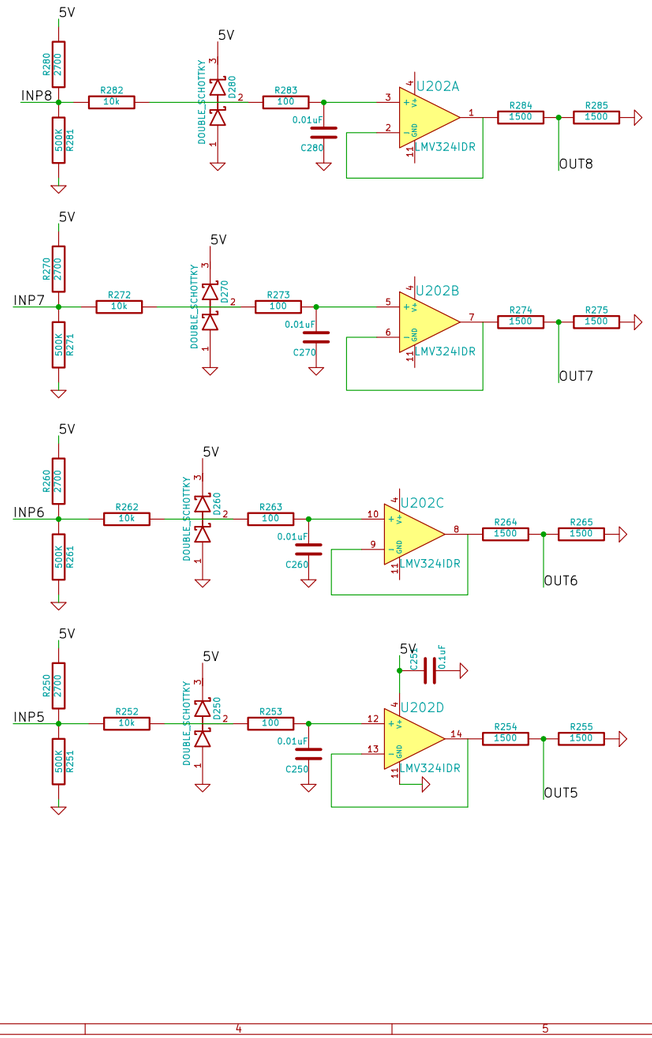
6 channel high / low side driver

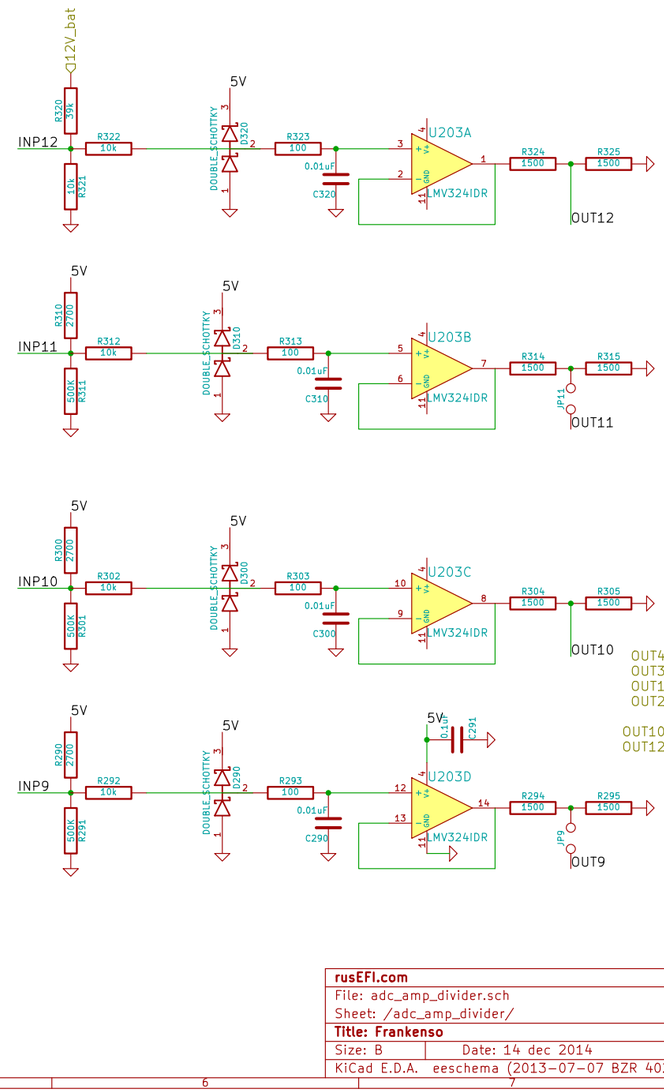


rusEFI.com		
File: hi-lo.sch		
Sheet: /hi-lo/		
Title: Frankenso		
Size: B	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 2/14

SUGGESTED ENGINE WIRING IN BLUE





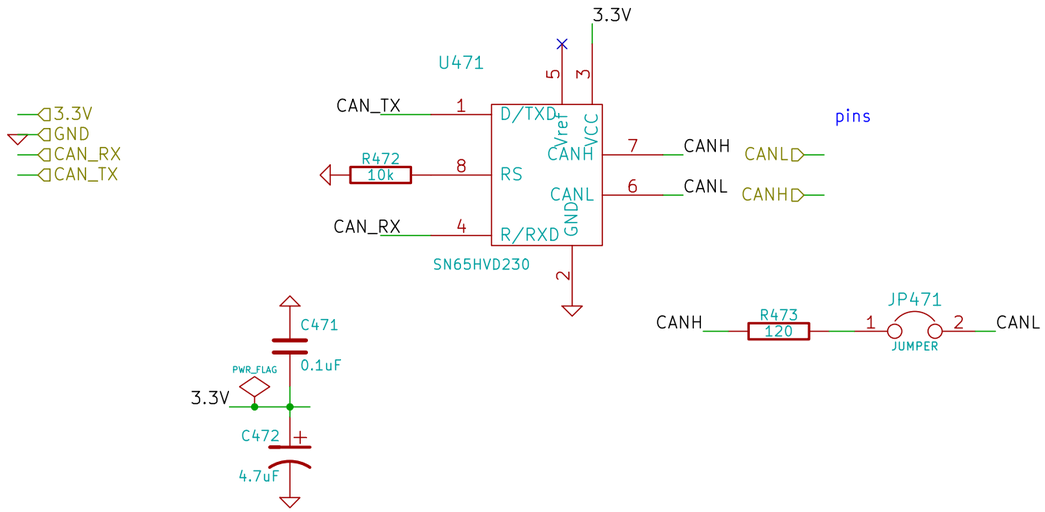


OUT4
OUT3
OUT1
OUT2
OUT10
OUT12

OUT6
OUT5
OUT8
OUT7
OUT9
OUT11

INP12
INP11
INP10
INP9
INP8
INP7
INP6
INP5
INP4
INP3
INP2
INP1

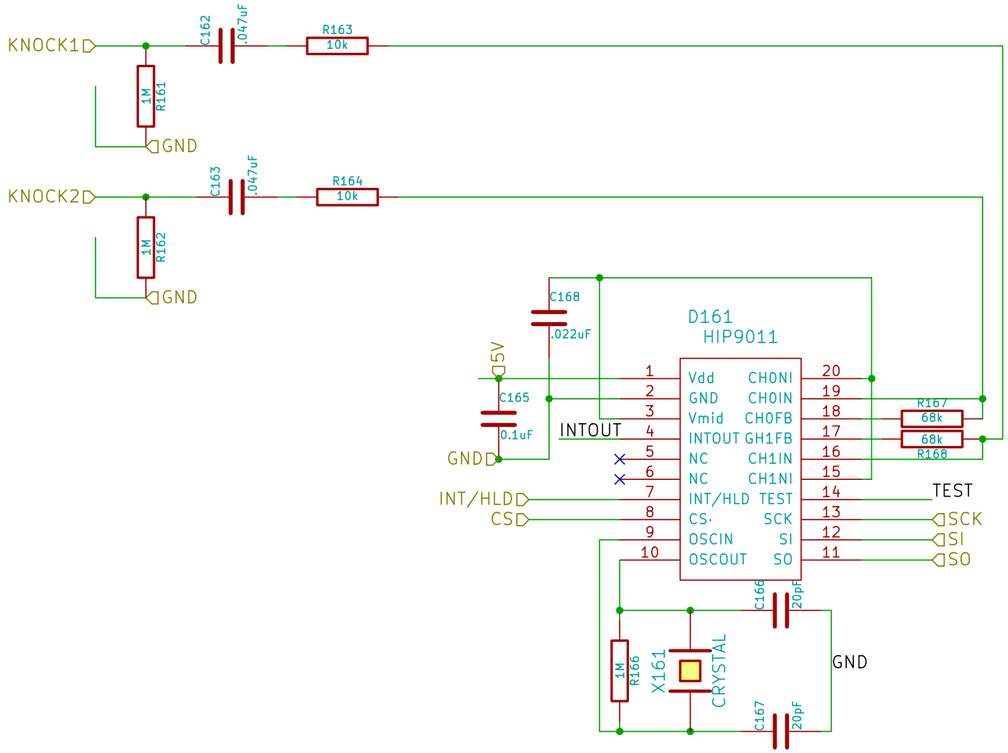
rusEFI.com		
File: adc_amp_divider.sch		
Sheet: /adc_amp_divider/		
Title: Frankenso		
Size: B	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A.	eeschema (2013-07-07 BZR 4022)-stable	Id: 3/14

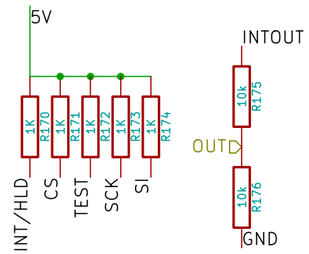


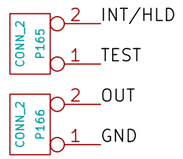
CAN level shifter

rusEFI.com		
File: can_brd_1.sch		
Sheet: /can_brd_1/		
Title: Frankenso		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A.	eeschema (2013-07-07 BZR 4022)-stable	Id: 4/14

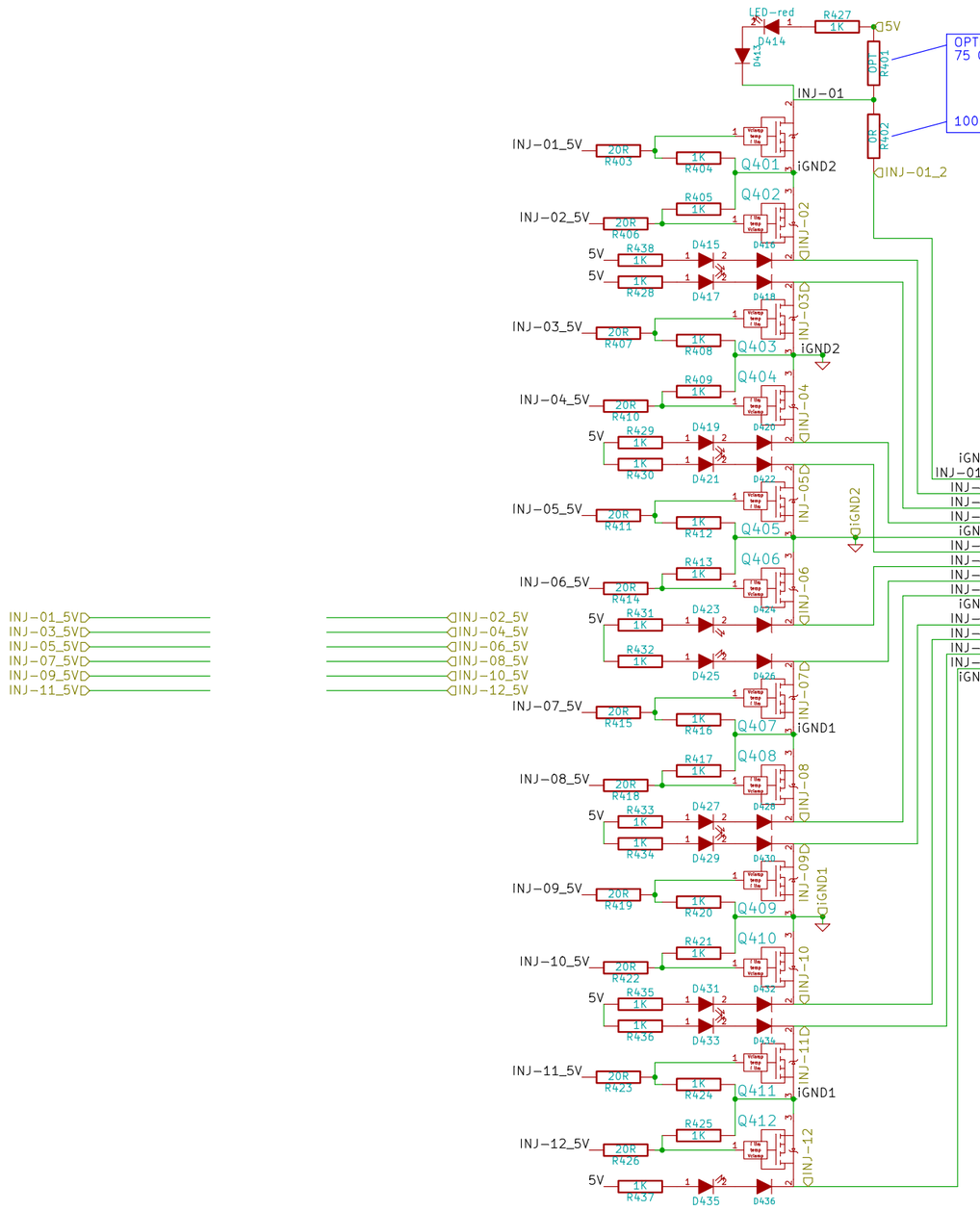
DD_HIP9011 ver.2
RusEfi.com







rusEFI.com		
File: DD_HIP9011.sch		
Sheet: /DD_HIP9011/		
Title: Frankenso		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 5/14



12 channel injector driver
also suitable for fuel pump relay, IAC solenoid etc

MISC NOTES

THE GENERAL SYSTEM LAYOUT IS SHOWN IN BLUE. THIS IS NOT
THE SUGGESTED SYSTEM WIRING, IT DOES SHOW THE GENERAL
OVERALL CIRCUIT LAYOUT TOPOLOGY.

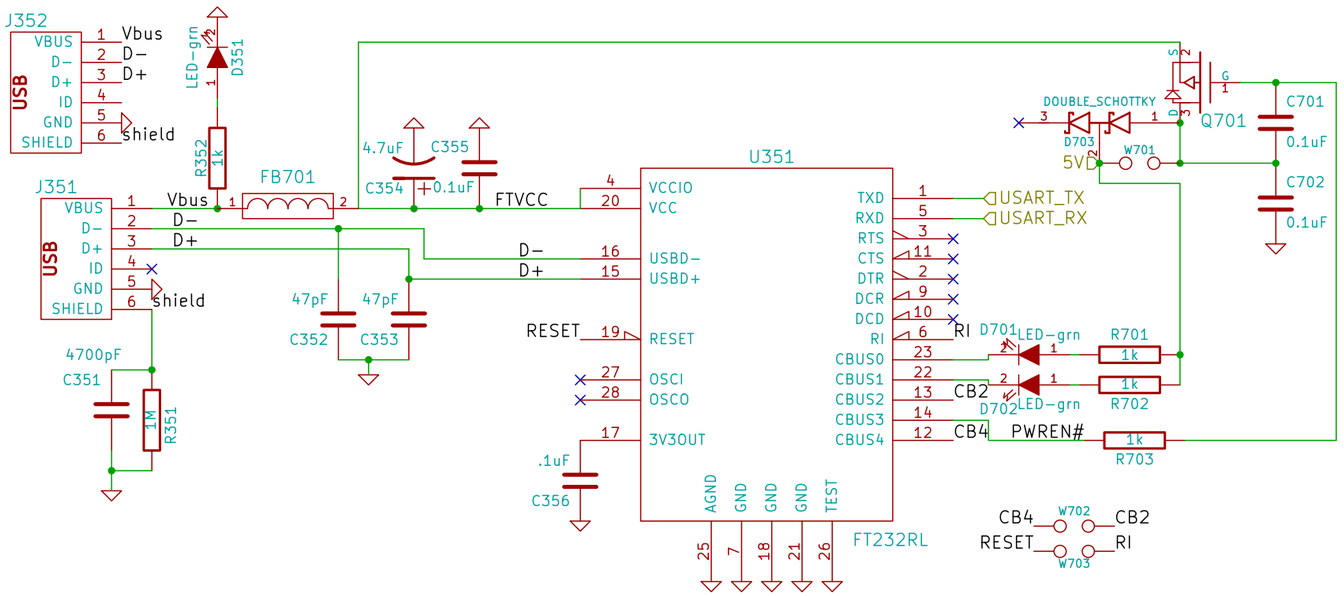
THE PCB WIRING IS SHOWN IN RED, GREEN WITH A BLUE BUS.

Screw terminals 1760500000

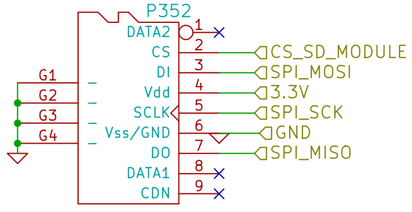
Screw connector PCB http://octopart.com/39522-1007-molex-655409
Screw connector harness http://octopart.com/partsearch#search/requestData&q=39520-0007

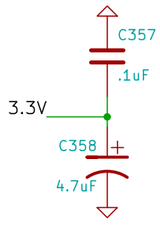
rusEFI.com		
File: inj_12ch.sch		
Sheet: /inj_12ch/		
Title: Frankenso		
Size: B	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 6/14

WJ01 IS A BACKUP PLAN. THE VOLTAGE DROP ACROSS D703 MAY BE NOT TOLERABLE, SO WE HAVE A BACK UP PLAN IF WE NEED TO BYPASS THE DIODE WITH A LOWER VOLTAGE DROP



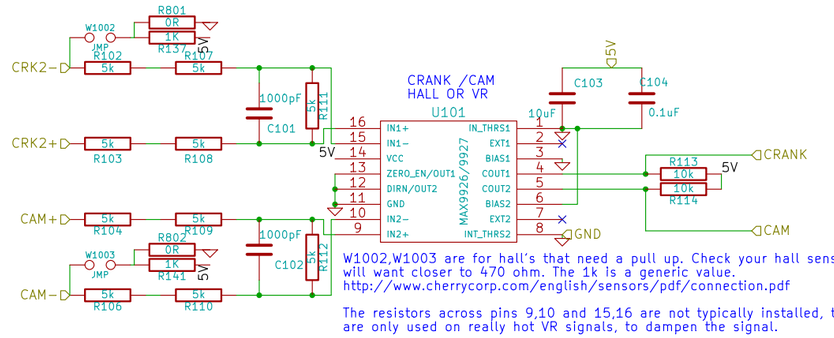
For right conn





SD card slot
USB TTL module

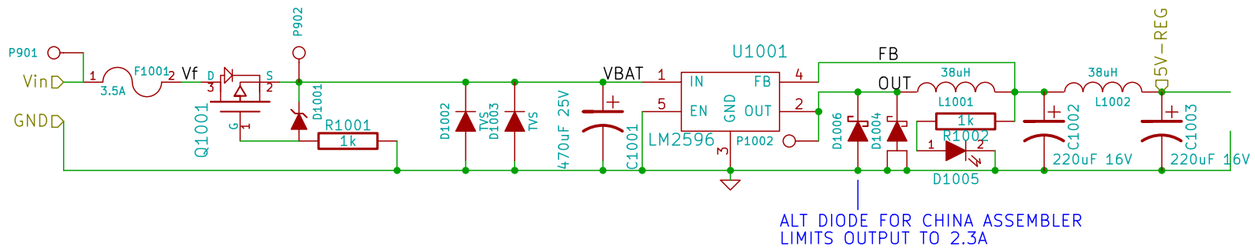
rusEFI.com		
File: mmc_usb_1.sch		
Sheet: /mmc_usb_1/		
Title: Frankenso		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 7/14



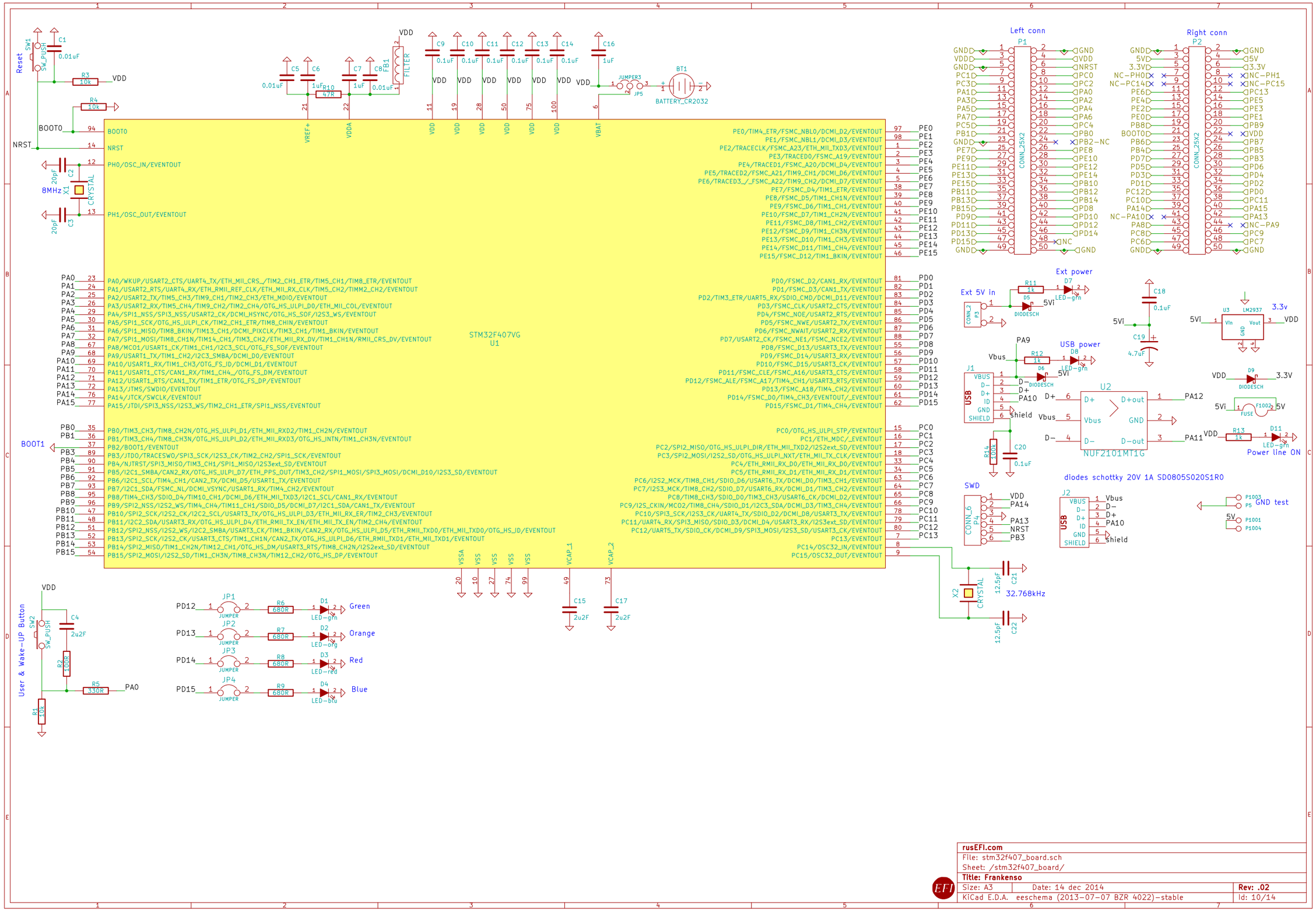
W1002,W1003 are for hall's that need a pull up. Check your hall sensors, many will want closer to 470 ohm. The 1k is a generic value.
http://www.cherrycorp.com/english/sensors/pdf/connection.pdf

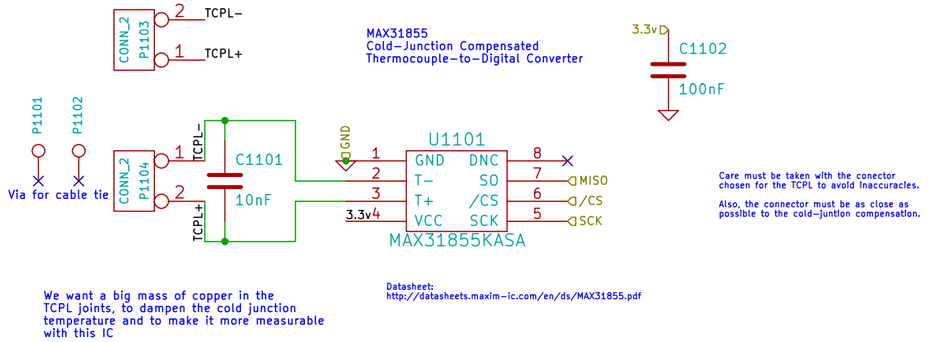
The resistors across pins 9,10 and 15,16 are not typically installed, they are only used on really hot VR signals, to dampen the signal.

rusEFI.com		
File: cps_vrs_io_1.sch		
Sheet: /cps_vrs_io_1/		
Title: Frankenso		
Size: B	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 8/14

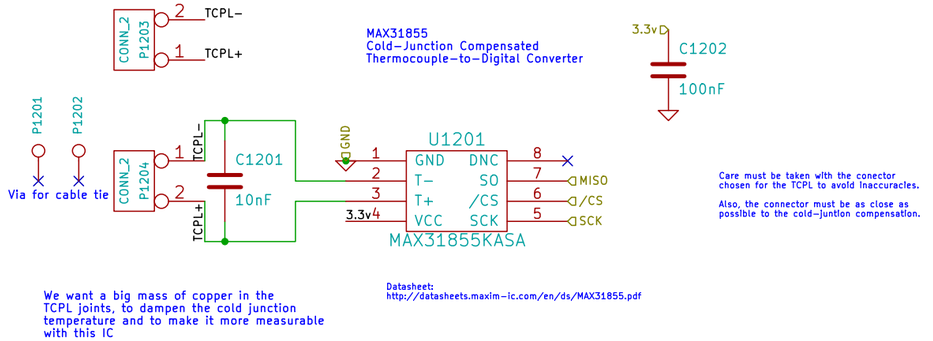


rusEFI.com		
File: PWR_buck_12V_switcher.sch		
Sheet: /PWR_buck_12V_switcher/		
Title: Frankenso		
Size: A	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 9/14

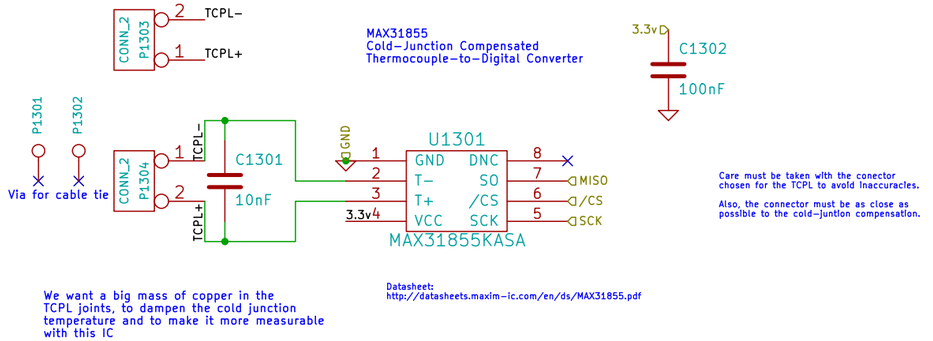

STM32F407VG
U1
Left conn
P1
Right conn
P2
Ext power
Ext 5V in
USB power
diodes schottky 20V 1A SD0805S020S1R0
Power line ON
GND test
NUF2101MT1G
32.768kHz
User & Wake-UP Button
Reset
BOOT0
BOOT1
NRST
SWD
Green
Orange
Red
Blue
rusEFI.com
File: stm32f407_board.sch
Sheet: /stm32f407_board/
Title: Frankenso
Size: A3
Date: 14 dec 2014
Rev: .02
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable
Id: 10/14



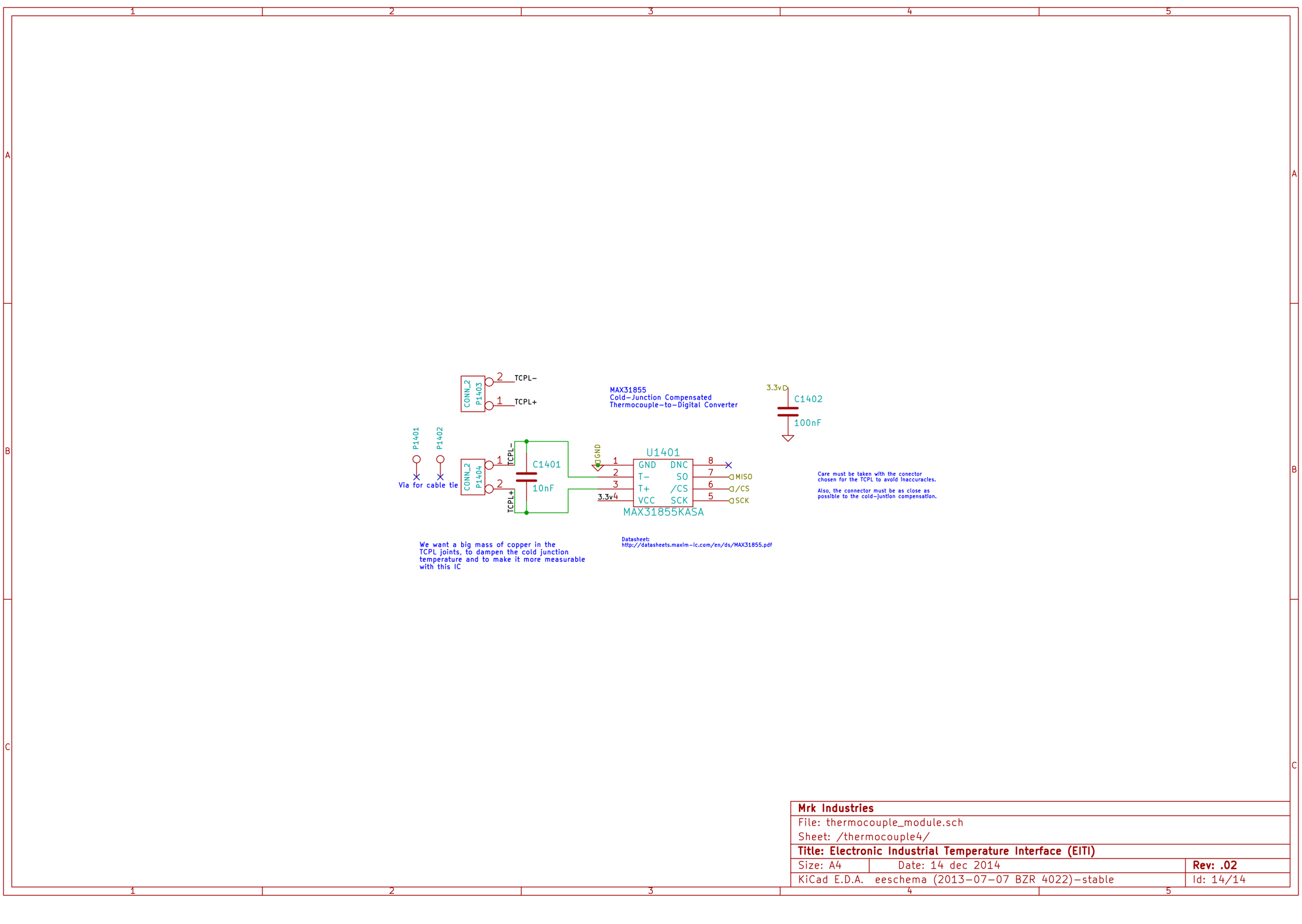
Mrk Industries		
File: thermocouple_module.sch		
Sheet: /thermocouple1/		
Title: Electronic Industrial Temperature Interface (EITI)		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 11/14



Mrk Industries		
File: thermocouple_module.sch		
Sheet: /thermocouple2/		
Title: Electronic Industrial Temperature Interface (EITI)		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 12/14



Mrk Industries		
File: thermocouple_module.sch		
Sheet: /thermocouple3/		
Title: Electronic Industrial Temperature Interface (EITI)		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 13/14



Mrk Industries		
File: thermocouple_module.sch		
Sheet: /thermocouple4/		
Title: Electronic Industrial Temperature Interface (EITI)		
Size: A4	Date: 14 dec 2014	**Rev: .02**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 14/14