Power Supply

Communications

Wind Sensor

Temperature PT1000 Sensor

File: parameteo_hwrev_f_pwr.kicad_sch

File: parameteo_hwrev_f_comms.kicad_sch

File: parameteo_hwrev_f_wind.kicad_sch

File: parameteo_hwrev_f_pt1000.kicad_sch

Resistors with reference in form of RxyVn where
x and optional y – letters
n – number
are used to configure assembly variants of the pcb.
All resistors with the same x and (optionally) y forms the same variant and all of them have to be placed.
All of them are value of 0 Ohm if not specified otherwise

Please note that some variants are mutually exclusive. You has to make a choice
between one or another. Otherwise the controller will be damaged.

REVn – U7 op amp bypass. In such case
U7 (LMV385), R15, R21, R18, R22 schall not be fitted
RFVn – UART1 on TTL level available on RJ45 jack

All buttons are:
KSC343J LFG C&K

MCP1802T-3302I may be also used as U11

D5 SEMTECH UCLAMP3301D.TCT

(c) Bielsko – Biała 2020, 2021, 2022, 2023, 2024
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Sheet: /
File: parameteo_hwrev_f.kicad_sch

Title: ParaMETEO – PV powered, full odu, APRS WX station controller

Size: A3	Date: 2024-05-05	**Rev: F**
KiCad E.D.A. kicad 6.0.2+dfsg-1		Id: 1/5

Q204
BSL207SP
FL203
NFE31PT222Z1E9L
VBATT_PROT
VBATT_SW_M
R208 10k
R206 10k
UC_CNTRL_VM
Q202
BC846
TP202
TP_CNTRL_VBATT_M
C207 47u
GND
Q203
BSL207SP
FL202
NFE31PT222Z1E9L
VBATT_PROT
VBATT_SW_R
R207 10k
R205 10k
CNTRL_VBATT_R
Q201
BC846
TP201
TP_CNTRL_VBATT_R
C206 47u
GND
U204
MAX1837EUT33+T
KEMET T491D336K025AT,
33uF, 25VDC, SMD
L203
22u
VBATT_PROT
MAX33_IN
MAX33_FB
MAX33_OUT
MAX33_LX
C212 330n
C213 22u
SHDN
IN
FB
OUT
LX
GND
D205
STPS0530Z
L206
22u
VISHAY 293D107X96R3C2TE3
100uF, 6.3VDC, SMC
+3V3_C
C227 47uF
test
68uF
C230 330n
RBV201 0
RAV201 0
RAV202 0
VDDA_UNFILT
U205
LP2985-3.3
VBATT_PROT
LP33_VDDA_IN
LP33_VDDA_OUT
VIN
VOUT
ON/OFF
BP
L207
100n
VDDA
C214 2u2
C220 330n
C225 10u
C231 100n
C233 10u
C215 330n
CNTRL_VBATT_C
RBBV201 10k
RBBV201 0
If MCP1755T-5002E is used C40 shall not be fitted
R232 22k
R233 22k
R234 22k
UC_CNTRL_VS
UC_CNTRL_VC
UC_CNTRL_VG
GSM_PWR_CNTRL
CNTRL_VBATT_S
CNTRL_VBATT_C
CNTRL_VBATT_G
C239 100n
C242 100n
R237 0R
R236 0R
UC_CNTRL_VR
CNTRL_VBATT_R
CONTROLLER_PWR_CNTRL
NLV10MTC4R7 or
NLCV32T-4R7M-EF or
TDK NLCV32T-1R0M-EF
U202
LM2596S-ADJ
L201
1u
VBATT_PROT
LM_VR_VIN
LM_VR_FB
C202 10u
C204 10u
R210 10k
R209 10k
CNTRL_VBATT_R
Q205
BC846
ON/OFF
FB
L12 FERROCORE DE1207-47
L204
47u
D201
MBRS340
C215 100n
C216 220u
R215 1k
R214 5k1
+7V5_R
For +5.15V outpu place
1k5 as R220 and
4k7 as R219
NLV10MTC4R7 or
NLCV32T-4R7M-EF or
TDK NLCV32T-1R0M-EF
U208
LM2596S-ADJ
L208
1u
VBATT_PROT
LM_VG_VIN
LM_VG_FB
C226 10u
C232 10u
R227 10k
R220 10k
CNTRL_VBATT_G
TP205
TP_CNTRL_VBATT_G
Q208
BC846
R222 100k
C234 100n
L5 FERROCORE DE1209-100
L210
100u
R231
2k2
R236 1k
+4V_G
D210
MBRS340
C244 100n
C246 470u
+5V_C
+5V_S
+4V_G
SW_M201
LED
5V_S201
LED
5V_S202
LED
R201 2k2
R202 2k2
R204 2k2
Q207
BSL207SP
U203
MAX1837EUT50+T
CNTRL_VBATT_S
VBATT_PROT
MAX50_IN
MAX5_OUT
MAX5_LX
RCV202 10k
RCV201 10k
C210 100n
C211 22uF
L205
22u
C222 1u
RCV203 0
C229 68u
test
68uf
D204
STPS0530Z
Q206
BC846
TP203
TP_CNTRL_VBATT_S
KEMET T491D336K025AT,
33uF, 25VDC, SMD
22uH inductors: Viking NLV10KTC220
(SMD; 1210; 22uH; 300mA; 770m; Q15)
Resistors with reference in form of RxyVn where
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are used to configure assembly variants of the pcb.
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All of them are value of 0 Ohm if not specified otherwise
Please note that some variants are mutually exclusive. You has to make a choice
between one or another. Otherwise the controller will be damaged.
RAV – Micro analog domain (VDDA) is powered from +3V3_C
RBV – Micro analog domain (VDDA) is powered from it's own regulator
RBAV – Supply for micro analog domain can be controlled
RBBV – Supply for micro analog domain is permamently powered up
RCV – +5V_S is delivered by MAX18375
RDV – +5V_S is delivered by LP2985
U201
LP2985-5.0
RDV201 10k
VBATT_PROT
CNTRL_VBATT_S
LP5S_VOUT
+5V_S
C205 330n
RDV202 0
U207
LP2985-5.0
VBATT_PROT
LP5C_VIN
LP5C_VOUT
+5V_C
C221 330n
C224 10u
R221 10k
CNTRL_VBATT_C
TP206
TP_CNTRL_VBATT_C
C237 330n
C240 47u
C236 330n
If MCP1755T-5002E is used C40 shall not be fitted
PV connector for cabling harness
XY2500F-AV(5.0)-2P XINYA
PV201
PV
VPV_INPUT
FL201
NFE31PT222Z1E9L
C201 470u
TP211
TP_VPV_PFLTRED
VPV_PFLTRED
L202 22u
C203 47u
VPV_FLTRED
C208 47u
TP212
TP_VPV_FLTRED
C209 100u
R211 0R680
FL204
NFE31PT222Z1E9L
TP213
TP_VPV
VPV
D203
B340B
R212 1M4
R213 174k
D202
1N4148W
C217 10u
C218 100n
VIN
R216 470k
R217 100k
TP_VIN_REG
TP204
!SHDN
VIN_REG
CHRG
FAULT
TIMER
SHDN
VIN
SW
BOOST
SENSE
BAT
NTC
VFB
GND
U206
LT3652EMSE
radiator
FISCHER ELEKTRONIK SK09-20SA220
J201
Screw_Terminal_01x03
VBATT_SW_R
+7V5_R
plug EB5A-03-A ADAM TECH
socket EBRA-03-A ADAM TECH or
15EDGVC-3.5-03P-14-00A(H)
DEGSON ELECTRONICS
LD_CHRG
LD_FLT
LED
CHRG201
LED
FLT201
R218 5k1
R219 5k1
C223 4u7
This should be MBRS340
but it could be B340B
although it is smaller
MBRS340
D208
L209 22u
SW
TP208
TP_SENSE
D206
1N4148W
C235 1u
D207
BZX84C6V2
VBATT
SENSE
R228 0R1
R227 VIKING CS12FTFSR100
C236 VISHAY 293D106X9025B2TE3
B3100BE-13
D211
100n
C245
Rfb3
R224 20k
R225 1M
Rfb1
V_float 14.2V
R226 300k
Rfb2
VFB
NTC
R223 10k
TP_VFB
TP207
D209
SMBJ6.0A
TP209
TP_VBATT_PROT
C243 6800u
R229 33k
R230 3k3
VBAT_MEAS
TP210
TP_VBAT_MEAS
BATT201
BATTERY
VBATT_IN
FL205
NFE31PT222Z1E9L
C228 100uF
C238 47u
VISHAY
MAL213660221E3
EMI shield for power supply 4020.16 TEKO
H202
MountingHole
H203
MountingHole
H201
MountingHole_Pad
R203 0
H205
MountingHole_Pad
H206
MountingHole_Pad
H207
MountingHole_Pad
H208
MountingHole_Pad

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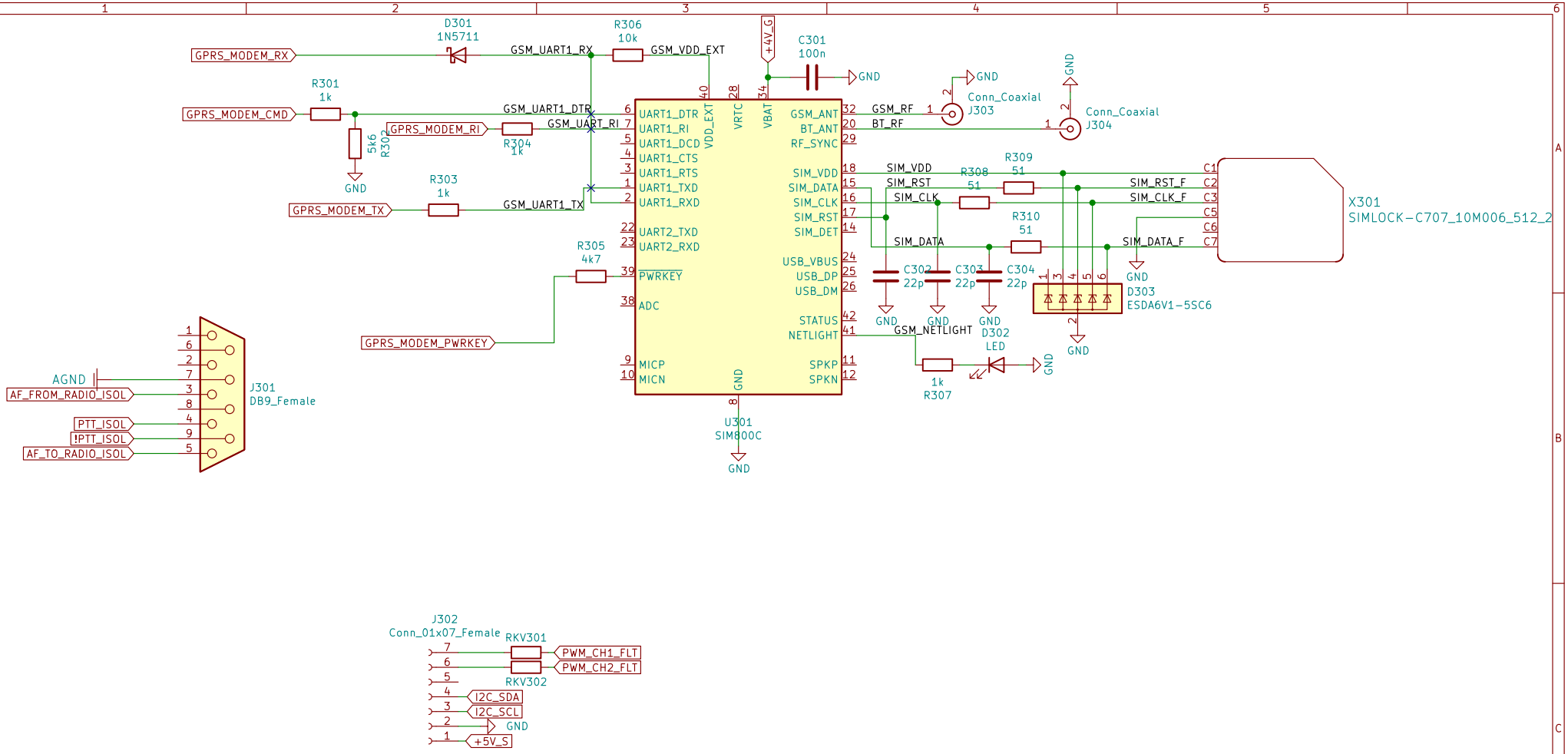
Title: ParaMETEO – PV powered, full odu, APRS WX station controller
Size: A3 | Date: 2024-05-05 | **Rev: F**
KiCad E.D.A. kicad 6.0.2+dfsg-1 | Id: 2/5



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RFVn – UART1 on TTL level available on RJ45 jack

B6B-XH-A JST
https://www.tme.eu/en/details/b6b-xh-a/raster-signal-connectors-2-50mm/jst/

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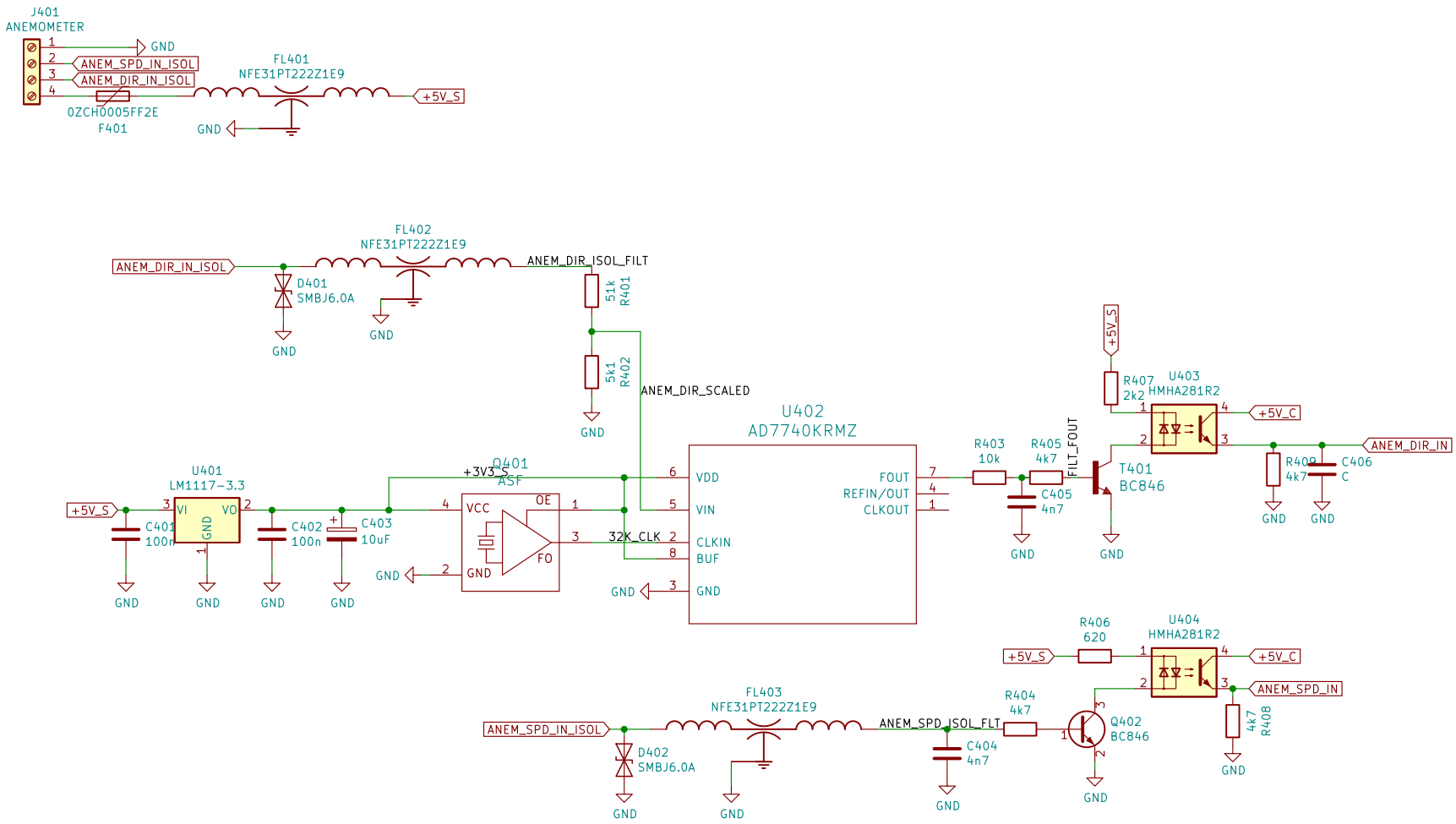
Title: ParaMETEO – PV powered, full odu, APRS WX station controller

Size: A4	Date: 2024-05-05	**Rev: F**
KiCad E.D.A. kicad 6.0.2+dfsg-1		Id: 3/5



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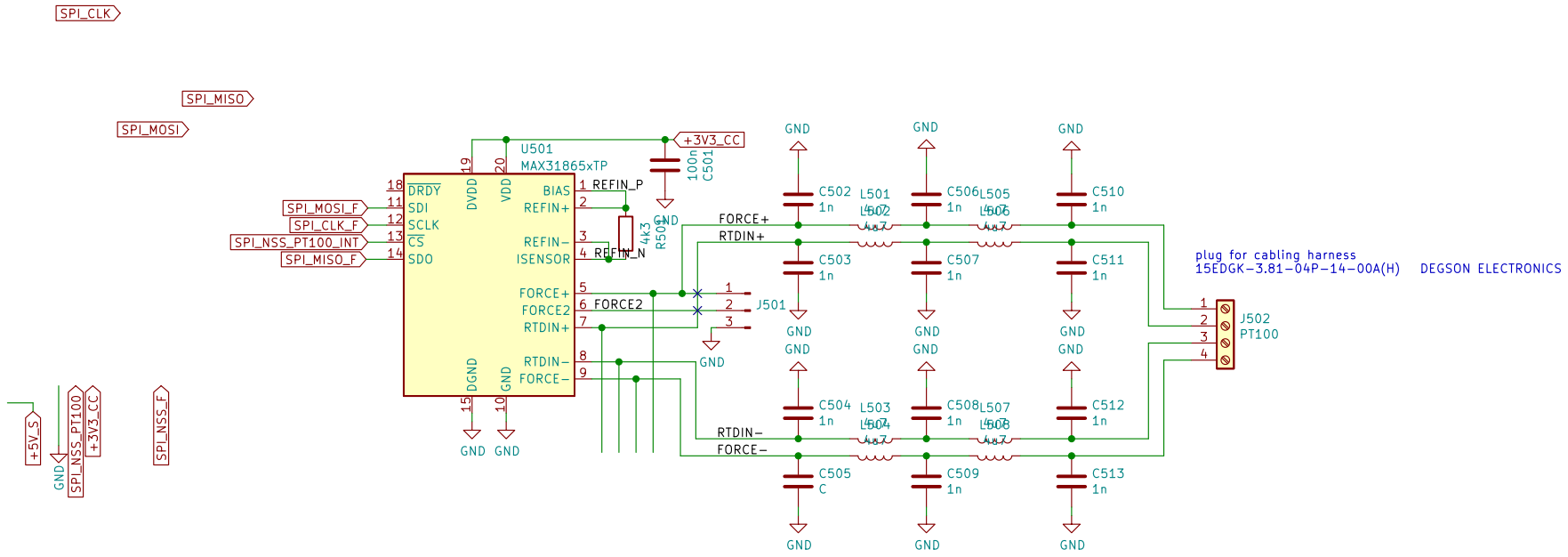
Sheet: /Wind Sensor/
File: parameteo_hwrev_f_wind.kicad_sch

Title: ParaMETEO – PV powered, full odu, APRS WX station controller

Size: A4	Date: 2024-05-05	**Rev: F**
KiCad E.D.A. kicad 6.0.2+dfsg-1		Id: 4/5



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Sheet: /Temperature PT1000 Sensor/
File: parameteo_hwrev_f_pt1000.kicad_sch

Title: ParaMETEO – PV powered, full odu, APRS WX station controller

Size: A4	Date: 2024-05-05	**Rev: F**
KiCad E.D.A. kicad 6.0.2+dfsg-1		Id: 5/5