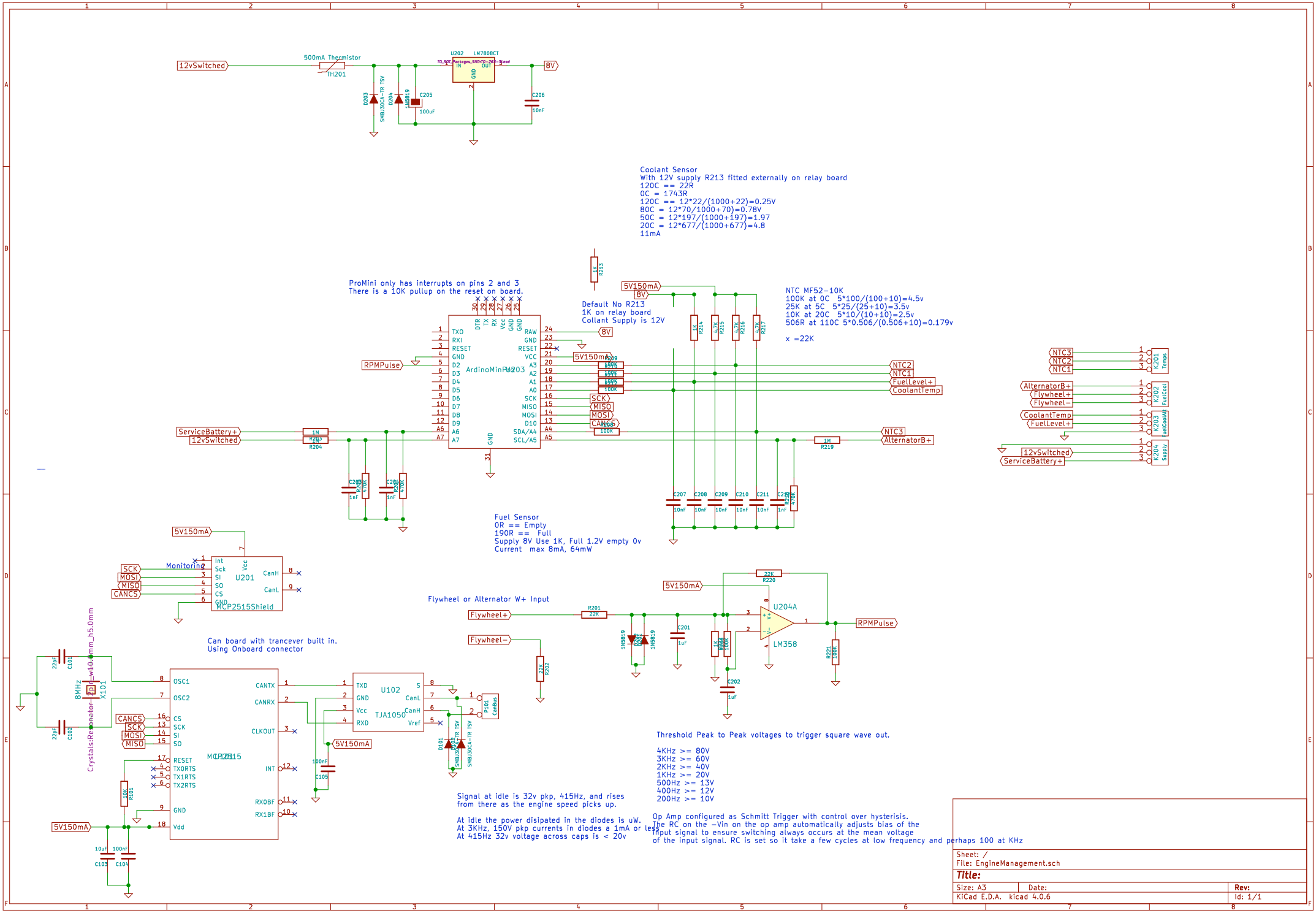
12vSwitched
500mA Thermistor
TH201
U202 LM7808CT
8V
D203 SMBJ30CA-TR 30V
D204 1N5819
C205 100uF
C206 10nF
Coolant Sensor
With 12V supply R213 fitted externally on relay board
120C == 22R
0C = 1743R
120C == 12*22/(1000+22)=0.25V
80C = 12*70/(1000+70)=0.78V
50C = 12*197/(1000+197)=1.97
20C = 12*677/(1000+677)=4.8
11mA
ProMini only has interrupts on pins 2 and 3
There is a 10K pullup on the reset on board.
Default No R213
1K on relay board
Collant Supply is 12V
R213 1K
5V150mA
8V
NTC MF52-10K
100K at 0C 5*100/(100+10)=4.5v
25K at 5C 5*25/(25+10)=3.5v
10K at 20C 5*10/(10+10)=2.5v
506R at 110C 5*0.506/(0.506+10)=0.179v
x =22K
R214 1K
R215 4.7K
R216 4.7K
R217 4.7K
ArdinoMiniPro203
RPMPulse
NTC2
NTC1
FuelLevel+
CoolantTemp
SCK
MISO
MOSI
CANCS
NTC3
AlternatorB+
ServiceBattery+
12vSwitched
R219 1M
C207 C208 C209 C210 C211 C212
Fuel Sensor
0R == Empty
190R == Full
Supply 8V Use 1K, Full 1.2V empty 0v
Current max 8mA, 64mW
K201 Temps
K202 FuelCool
K203 CoolantAlt
K204 Supply
Monitoring
U201 MCP2515Shield
Flywheel or Alternator W+ Input
Flywheel+
Flywheel-
R201 22K
R220 22K
U204A LM358
C201 1uF
C202 1uF
R221 100K
R222 1K
R223 100K
R202 22K
Can board with trancever built in.
Using Onboard connector
8MHz X101
Crystals:Resonator_4x10.4mm_h5.0mm
C101 22pF
C102 22pF
U102 TJA1050
P101 CanBus
D101 SMBJ30CA-TR 30V
C103 10uF
C104 100nF
C105 100nF
R101 10K
Threshold Peak to Peak voltages to trigger square wave out.
4KHz >= 80V
3KHz >= 60V
2KHz >= 40V
1KHz >= 20V
500Hz >= 13V
400Hz >= 12V
200Hz >= 10V
Signal at idle is 32v pkp, 415Hz, and rises
from there as the engine speed picks up.
At idle the power disipated in the diodes is uW.
At 3KHz, 150V pkp currents in diodes a 1mA or less
At 415Hz 32v voltage across caps is < 20v
Op Amp configured as Schmitt Trigger with control over hysterisis.
The RC on the -Vin on the op amp automatically adjusts bias of the
input signal to ensure switching always occurs at the mean voltage
of the input signal. RC is set so it take a few cycles at low frequency and perhaps 100 at KHz
Sheet: /
File: EngineManagement.sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 4.0.6
Id: 1/1