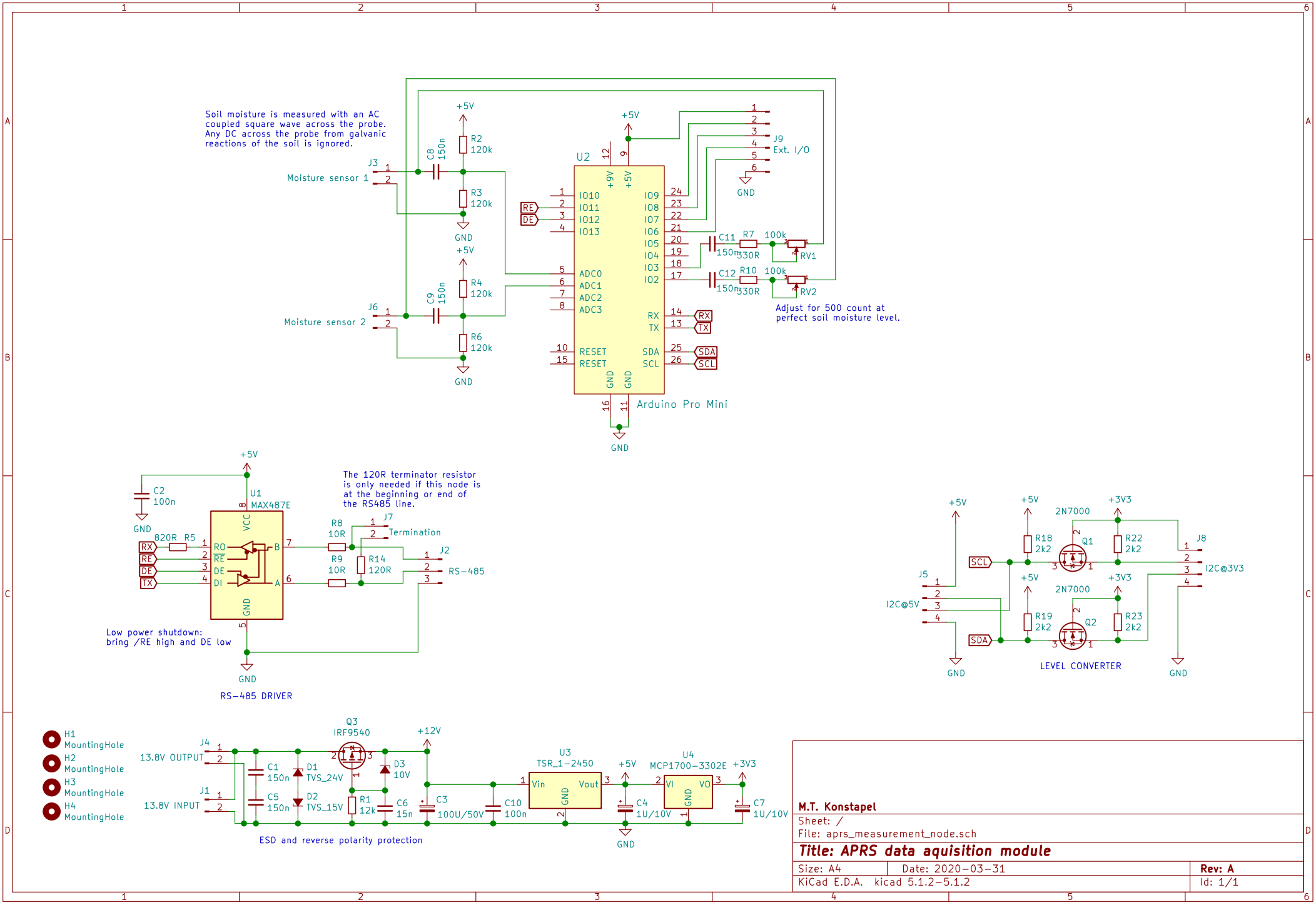
Soil moisture is measured with an AC coupled square wave across the probe. Any DC across the probe from galvanic reactions of the soil is ignored.
Moisture sensor 1
Moisture sensor 2
J3
J6
C8 150n
C9 150n
R2 120k
R3 120k
R4 120k
R6 120k
+5V
GND
U2
Arduino Pro Mini
J9
Ext. I/O
C11 150n
R7 330R
R10 330R
C12 150n
100k
RV1
RV2
Adjust for 500 count at perfect soil moisture level.
RE
DE
RX
TX
SDA
SCL
U1
MAX487E
C2 100n
820R R5
R8 10R
R9 10R
R14 120R
J7
Termination
J2
RS-485
The 120R terminator resistor is only needed if this node is at the beginning or end of the RS485 line.
Low power shutdown: bring /RE high and DE low
RS-485 DRIVER
J5
I2C@5V
J8
I2C@3V3
2N7000
Q1
Q2
R18 2k2
R19 2k2
R22 2k2
R23 2k2
+3V3
LEVEL CONVERTER
H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole
J4
13.8V OUTPUT
J1
13.8V INPUT
Q3
IRF9540
+12V
C1 150n
C5 150n
D1 TVS_24V
D2 TVS_15V
D3 10V
R1 12k
C6 15n
C3 100U/50V
C10 100n
U3
TSR_1-2450
Vin
Vout
C4 1U/10V
U4
MCP1700-3302E
VI
VO
C7 1U/10V
ESD and reverse polarity protection
M.T. Konstapel
Sheet: /
File: aprs_measurement_node.sch
Title: APRS data aquisition module
Size: A4
Date: 2020-03-31
Rev: A
KiCad E.D.A. kicad 5.1.2-5.1.2
Id: 1/1