MAX487– RO

Receiver Output Enable (RO):
RO is enabled when ~RE is low;
RO is high impedance when ~RE is high

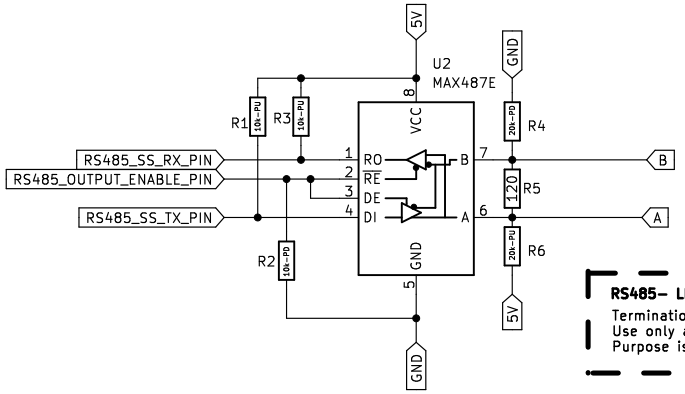
if V_a > V_b, RO is high
if V_b > V_a, RO is low

At Idle, UART RX line should be kept at positive voltage
Thus 10K Pull–Up resistor is added to keep line
voltage positive when high impedance mode is active

MAX487– DI

Driver input(DI):
If DE is high. The output terminals A & B are
controlled according to DI.
If DI>0, V_a > V_b
If DI<0, V_b > V_a

A pull up resistor is connected to DI. When
DI is floating, This pull–up resistor keeps DI positive
so that V_a>V_b is achieved (as if device is ot speaking)



RS485– LINE TERMINATION

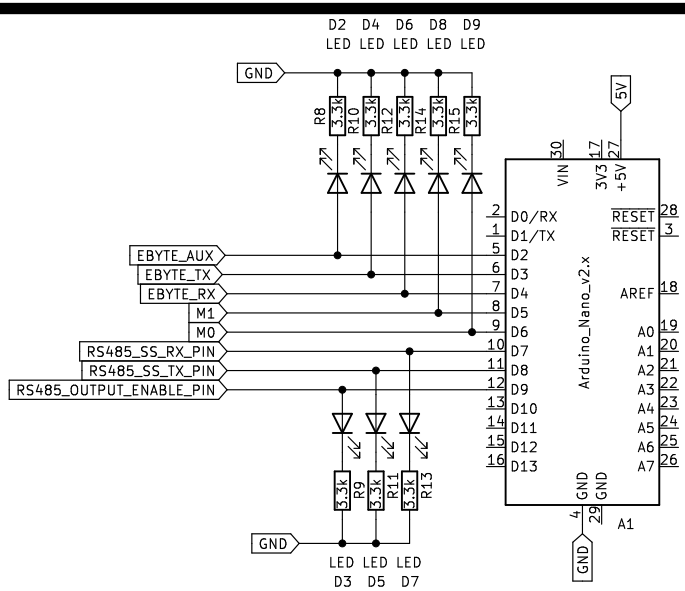
Termination resistor (120 Ohm)
Use only at the master and at the eol.
Purpose is to eliminate reflected EMWs

MAX487– OUTPUT PULL–UP & PULL DOWN

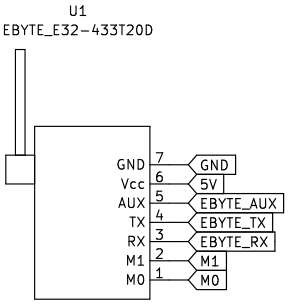
If A and B are floating terminals and
~RE pin is LOW, state of RO is not well defined
Thus 20k pull–up & pull–down resistors are added
to A and B terminals respectively. When A & B are floating
The RO pin is HIGH

This resistors also keeps V_a > V_b when no device
is transmitting

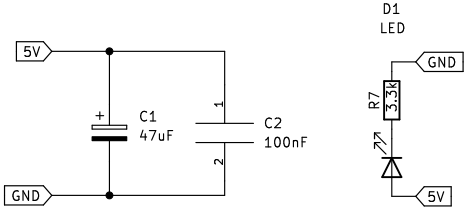
RS485 (MAX487)



MCU (Arduino Nano)



LoRa (EBYTE E32 433TD20D)



Power Input

PowerLab

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File: Device–1.kicad_sch

Title: Device 1 Schematic

Size: A4	Date: 2023–02–25	**Rev:**
KiCad E.D.A. kicad (6.0.11)		Id: 1/1