

Attachment 3: Application of TFmini in Pixhawk

TFmini can be connected with Pixhawk for use. By selecting Pixhawk data output format, the TFmini can directly be connected with the serial port of Pixhawk, and also it can connect with other communication interfaces (e.g. I²C) of Pixhawk via appropriate adaptors. TFmini can be used in flight device for avoid obstacles. It is recommended that Pixhawk adopts ArduCopter V3.4.9-V3.5.5 firmware.

Example for connecting Pixhawk:

a) Connect TELEM2 interface of Pixhawk

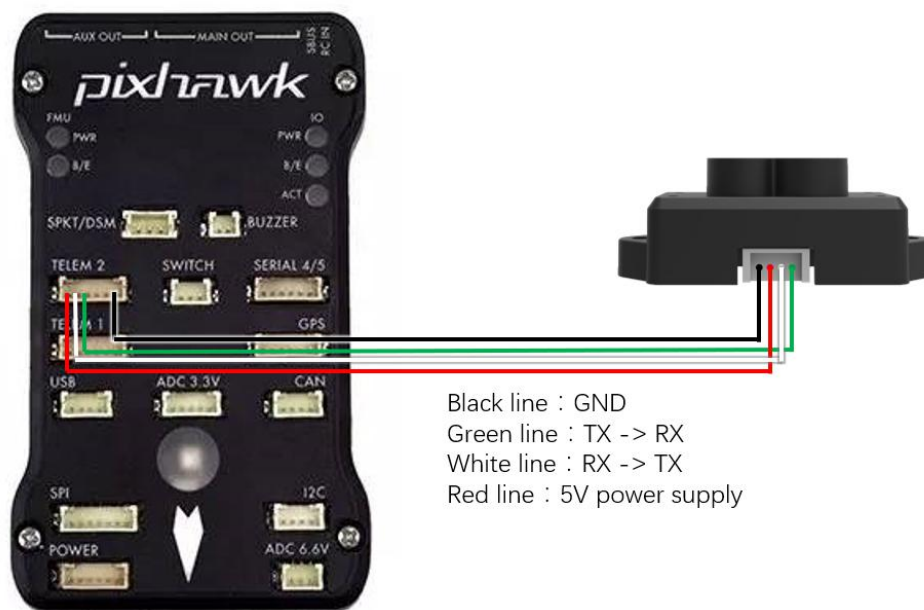


Figure 1: Schematic Diagram of Connecting TFmini with TELEM2 (Serial Port 2) of Pixhawk

Configuration Descriptions of Mission Planner

Connect the flight control board to MP, Select [Full Parameter List] in the left from the below bar-[CONFIG/TUNING] . Find and modify the following parameters:

AVOID_MARGIN=3 (unit : m , Can be set according to demand avoid obstacles)

SERIAL2_PROTOCOL = 9 (Lidar)

SERIAL2_BAUD = 115

RNGFND_TYPE = 8 (LightWareSerial)

RNGFND_SCALING = 1

RNGFND_MIN_CM = 30

RNGFND_MAX_CM = 600 (unit : cm , Can be set according to demand location height, outdoor setting distance less than 600 TFmini)

RNGFND_GNDCLEAR = 15 (unit : cm , depending upon mounting height of the module)

RNGFND_GAIN=0.8

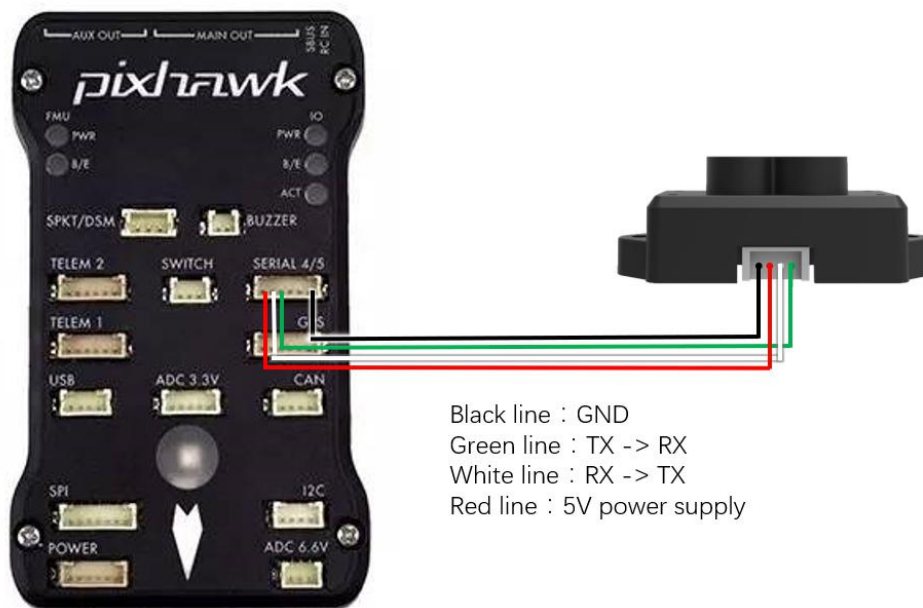
RNGFND_ORIENF=0 (Forward Avoid obstacles)

PRX_TYPE=4

PRX_YAW_CORE=0

Upon setting of these parameters, click [Write Params] on the right of the software to finish.

If the error message “**Bad Lidar Health**” appears, please check if the connection is correct and the power supply is normal.



b) Connection with SERIAL4/5 interface of Pixhawk

Figure 2 Schematic Diagram of Connecting TFmini with SERIAL4/5 Interface (Serial Port 4/5) of Pixhawk

Configuration Descriptions of Mission Planner

Connect flight control board to MP, Select [Full Parameter List] in the left from the below bar [CONFIG/TUNING] . Find and modify following parameters:

AVOID_MARGIN=3 (unit : m , Can be set according to demand avoid obstacles)

SERIAL4_PROTOCOL = 9 (Lidar)

SERIAL4_BAUD = 115

RNGFND_TYPE = 8 (LightWareSerial)

RNGFND_SCALING = 1

RNGFND_MIN_CM = 30

RNGFND_MAX_CM = 600 (unit :cm ,Can be set according to demand location height, outdoor setting distance less than 600 TFmini)

RNGFND_GNDCLEAR = 15 (unit : cm , depending upon mounting height of the module)

RNGFND_GAIN=0.8

RNGFND_ORIENF=0 (Forward Avoid obstacles)

PRX_TYPE=4

PRX_YAW_CORE=0

Upon setting of these parameters, click [Write Params] on the right of the software to finish.