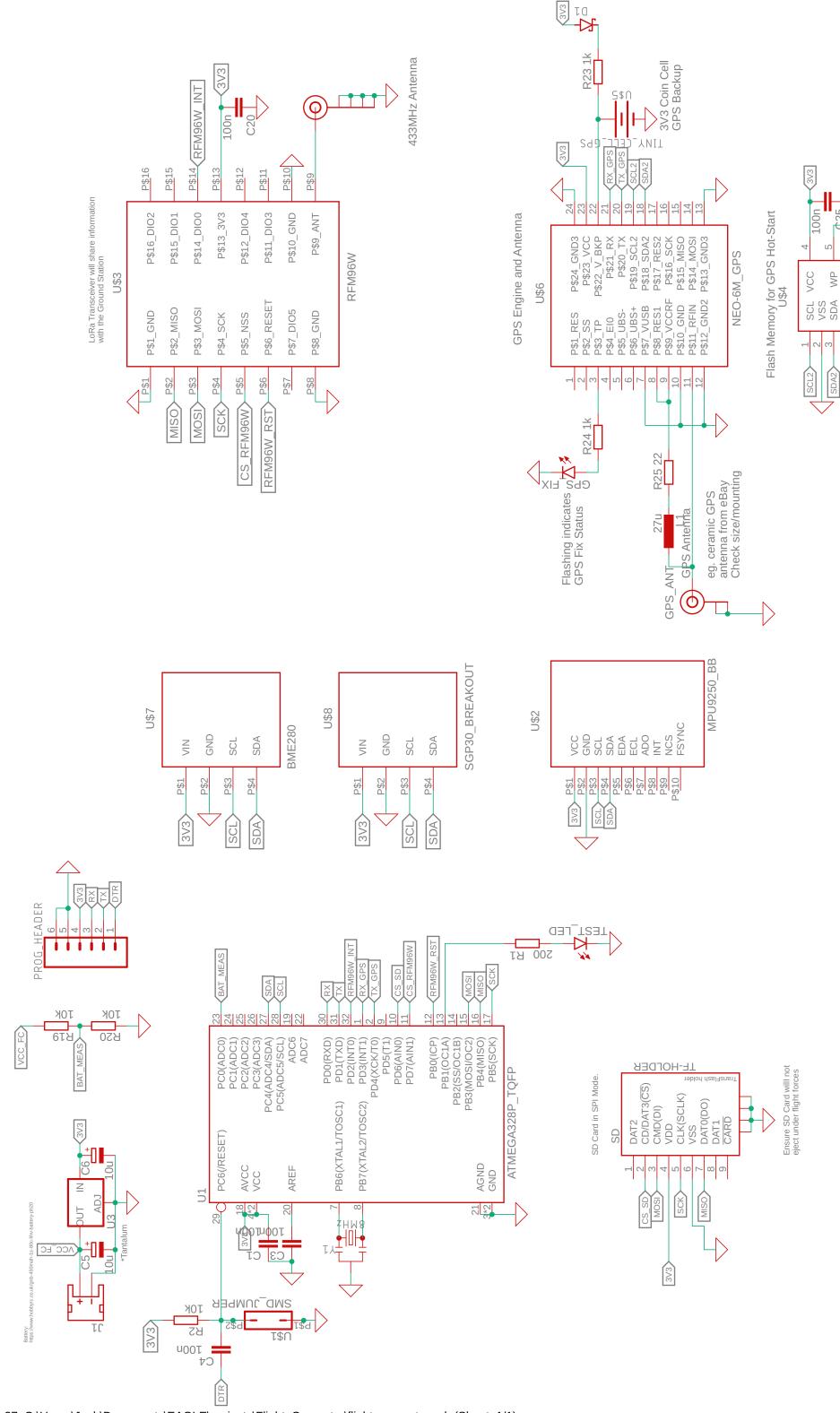# Flight Computer v1.0

RFM96W — U$3

LoRa Transceiver will share information with the Ground Station

- P$16 DIO2
- P$15 DIO1
- P$14 DIO0
- P$13 3V3
- P$12 DIO4
- P$11 DIO3
- P$10 GND
- P$9 ANT
- P$1 GND
- P$2 MISO
- P$3 MOSI
- P$4 SCK
- P$5 NSS
- P$6 RESET
- P$7 DIO5
- P$8 GND

MISO, MOSI, SCK, CS_RFM96W, RFM96W_RST

RFM96W INT
3V3
C20 100n
433MHz Antenna

U$6 — NEO-6M_GPS

GPS Engine and Antenna

- 24 P$24_GND3
- 23 P$23_VCC
- 22 P$22_V_BKP
- 21 P$21_RX
- 20 P$20_TX
- 19 P$19_SCL2
- 18 P$18_SDA2
- 17 P$17_RES2
- 16 P$16_SCK
- 15 P$15_MISO
- 14 P$14_MOSI
- 13 P$13_GND3
- 1 P$1_RES
- 2 P$2_SS
- 3 P$3_TP
- 4 P$4_EIO
- 5 P$5_UBS-
- 6 P$6_UBS+
- 7 P$7_VUSB
- 8 P$8_RES1
- 9 P$9_VCCRF
- 10 P$10_GND
- 11 P$11_RFIN
- 12 P$12_GND2

RX_GPS, TX_GPS, SCL2, SDA2, 3V3

D1
R23 1k
U$5 — TINY_CELL_GPS
3V3 Coin Cell
GPS Backup

R24 1k
GPS FIX
Flashing indicates GPS Fix Status

R25 22
27u
L1
GPS_ANT
GPS Antenna
eg. ceramic GPS antenna from eBay
Check size/mounting

U$4 — 24AA32A
Flash Memory for GPS Hot-Start

- 4 SCL VCC
- VSS
- 5 SDA WP
- 1
- 2
- 3

3V3
C25 100n
SCL2, SDA2

U$7 — BME280
- P$1 VIN
- P$2 GND
- P$3 SCL
- P$4 SDA

3V3, SCL, SDA

U$8 — SGP30_BREAKOUT
- P$1 VIN
- P$2 GND
- P$3 SCL
- P$4 SDA

3V3, SCL, SDA

U$2 — MPU9250_BB
- P$1 VCC
- P$2 GND
- P$3 SCL
- P$4 SDA
- P$5 EDA
- P$6 ECL
- P$7 ADO
- P$8 INT
- P$9 NCS
- P$10 FSYNC

3V3, SCL, SDA

PROG_HEADER
- 6 3V3
- 5
- 4 RX
- 3 TX
- 2 DTR
- 1

R19 10K — VCC_FC
R20 10K
BAT_MEAS

U1 — ATMEGA328P_TQFP
- 23 PC0(ADC0)
- 24 PC1(ADC1)
- 25 PC2(ADC2)
- 26 PC3(ADC3)
- 27 PC4(ADC4/SDA)
- 28 PC5(ADC5/SCL)
- 19 ADC6
- 22 ADC7
- 30 PD0(RXD)
- 31 PD1(TXD)
- 32 PD2(INT0)
- 1 PD3(INT1)
- 2 PD4(XCK/T0)
- 9 PD5(T1)
- 10 PD6(AIN0)
- 11 PD7(AIN1)
- 12 PB0(ICP)
- 13 PB1(OC1A)
- 14 PB2(SS/OC1B)
- 15 PB3(MOSI/OC2)
- 16 PB4(MISO)
- 17 PB5(SCK)
- 29 PC6(/RESET)
- 18 AVCC
- 4 VCC
- 20 AREF
- 7 PB6(XTAL1/TOSC1)
- 8 PB7(XTAL2/TOSC2)
- 21 AGND
- 3 GND

BAT_MEAS, SDA, SCL, RX, TX, RFM96W INT, RX_GPS, TX_GPS, CS_SD, CS_RFM96W, RFM96W_RST, MOSI, MISO, SCK

R1 200
TEST_LED

C3 100nF
3V3
Y1 8MHz
C1
C4 100n
R2 10K
U$1 — SMD_JUMPER
P$1, P$2
3V3
DTR

J1 — Battery
https://www.hobbync.co.uk/gnb-450mah-1s-90c-lihv-battery-gb20

VCC_FC
C5 10u
C6 10u
*Tantalum
U3 — IN OUT ADJ
3V3

TF-HOLDER — SD Card in SPI Mode
- 1 DAT2
- 2 CD/DAT3(CS)
- 3 CMD(DI)
- 4 VDD
- 5 CLK(SCLK)
- 6 VSS
- 7 DAT0(DO)
- 8 DAT1
- 9 CARD

SD
TransFlash holder
Ensure SD Card will not eject under flight forces

CS_SD, MOSI, SCK, MISO, 3V3