

POWER SECTION

The Power Section schematic diagram illustrates the power regulation and monitoring circuitry. It features two voltage regulators: a 5V regulator and a 12V regulator. The 5V regulator is based on the TP5V1 module and an 8C547 transistor. The 12V regulator is based on the TP12V1 module. Both regulators include input capacitors (C1, C2, C3, C4), output capacitors (C5, C6), and feedback resistors (R1, R2, R3, R4, R5). The 5V regulator also includes a feedback resistor R2 and a feedback capacitor C2. The 12V regulator includes a feedback resistor R4 and a feedback capacitor C5. The LED indicators are J1 (5V), J6 (12V), and J7 (5V). The diagram also shows the connection to the MiniFit_Molex_Connector_Vertical_2_Pin and MiniFit_Molex_Connector_Vertical_4_Pin.

5V Regulator:

- Input: MiniFit_Molex_Connector_Vertical_2_Pin (J3)
- Input Capacitor: C1 (C_SMD_100nF_1206)
- Input Filter: D1 (D_SMD_S554_D0241AB)
- TP5V1 TestPoint_Probe
- Output Capacitor: C2 (C_SMD_100nF_1206)
- Output Filter: C3 (C_SMD_100nF_1206)
- Feedback Resistor: R1 (R_1K_1206)
- Feedback Resistor: R2 (R_1K_1206)
- Feedback Resistor: R3 (R_220E_1206)
- Transistor: Q1 (8C547)
- Output: +5V
- LED Indicator: J1 (JST-XH_STRAIGHT_5V_INDICATOR)
- LED: D2 (LED_SMD_0805_GREEN)
- Ground: GNDREF

12V Regulator:

- Input: MiniFit_Molex_Connector_Vertical_4_Pin (J9)
- Input Capacitor: C4 (C_SMD_100nF_1206)
- Input Filter: D3 (D_SMD_S554_D0241AB)
- TP12V1 TestPoint_Probe
- Output Capacitor: C5 (C_SMD_100nF_1206)
- Output Filter: C6 (C_SMD_100nF_1206)
- Feedback Resistor: R4 (R_1K_1206)
- Feedback Resistor: R5 (R_220E_1206)
- Transistor: Q1 (8C547)
- Output: +12V
- LED Indicator: J6 (Conn_01x05)
- LED: D4 (LED_SMD_0805_RED)
- Ground: GNDREF

5V LED Indicator:

- Input: +5V
- LED: D4 (LED_SMD_0805_RED)
- Ground: GNDREF

12V LED Indicator:

- Input: +12V
- LED: D4 (LED_SMD_0805_RED)
- Ground: GNDREF

General Purpose:

- Input: +5V
- LED: D4 (LED_SMD_0805_RED)
- Ground: GNDREF

VOLTAGE REGULATOR

12V TO 5V

For 2560 AREF

5V TO 3.3V

The diagram illustrates two different display interfaces:

- LCD I2C INTERFACE (ROTATOR):** This interface uses a 2560-SDC and 2560-SDA module. It is connected to a J1_01x04 connector. The module is powered by a +5V supply and a GNDREF ground connection. The I2C signal lines are labeled *I2C FROM 2560.
- OLED I2C INTERFACE (LORA):** This interface uses a 32BP-SDC and 32BP-SDA module. It is connected to a J1_01x04 connector. The module is powered by a +5V supply and a GNDREF ground connection. The I2C signal lines are labeled *I2C FROM 32BP.

E22-LORA-COMMS

The diagram illustrates the E22 LoRa Board (U6) and its connections. Key components and connections include:

- Power and Ground:**
 - 5V:** Connected to pin 4 (DIO1) and pin 16 (NSS).
 - GND:** Connected to pins 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, and various mounting holes (MH1-MH8).
 - 3.3V:** Connected to pin 3 (DIO2).
 - 1.8V:** Connected to pin 19 (ANT).
- Resistors:**
 - R16, R17, R18:** 10K 1206 resistors connected to pins 1, 2, and 3 respectively.
 - R19:** 10K 1206 resistor connected to pin 17.
- Jumpers:**
 - JP4:** SolderJumper_3_Bridged12, connecting pins 1 and 2.
 - JP2:** SolderJumper_3_Open, connecting pins 1, 2, and 3.
 - JP3:** SolderJumper_3_Open, connecting pins 1, 2, and 3.
- Board Pinout:**
 - 1:** RXEN
 - 2:** TXEN
 - 3:** DIO2
 - 4:** DIO1
 - 5:** 5V
 - 6:** GND
 - 7:** GND
 - 8:** GND
 - 9:** GND
 - 10:** GND
 - 11:** BUSY
 - 12:** NRST
 - 13:** MISO
 - 14:** MOSI
 - 15:** SCK
 - 16:** NSS
 - 17:** GND
 - 18:** GND
 - 19:** ANT
 - 20:** GND
- Additional Labels:**
 - 328P-D5:** Label for pin 4 (DIO1).
 - 328P-D4:** Label for pin 16 (NSS).
 - 328P-SCK:** Label for pin 15 (SCK).
 - 328P-MOSI:** Label for pin 14 (MOSI).
 - 328P-MISO:** Label for pin 13 (MISO).
 - 328P-D3:** Label for pin 12 (NRST).
 - 328P-D2:** Label for pin 11 (BUSY).

ROTATOR & LCD MAIN CONTROLLER

J6PIN_JST_XH-2.5MM_B6B-XH-A-STRAIGHT_TH

USB J9 UART FOR MAIN CONTROLLER

CH340-RESET
2560-TX
2560-RX

GNDREF

NOTE : DTR CAPACITOR MUST BE ENGAGED

ELEVATION_ANALOG_READ

+5V

R8 R_220E_1206
D7 LED_SMD_0805_GREEN

GNDREF

2560-TX
2560-RX
GND
USBS9

GNDREF

GNDREF

MAIN MCU RESET

SW1 C15 C_SMD_22pF_1206

SW2 SW_Push_SPDT

CH340-RESET

2560 BootReset Control

R13 R_1K_1206
R14 R_1K_1206

32BP-SOFTWARE_SERIAL_06_TX
32BP-SOFTWARE_SERIAL_07_RX

ATMEGA2560_module

D45 D44 D43 D42 D41 D40 D39 D38 D37 D36 D35 D34 D33 D32 D31 D30 D29 D28 D27 D26 D25 D24 D23 D22 D21 D20 D19 D18 D17 D16 D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0

ATMEGA2560_module

HOST-ICSP

J13 J6PIN_IDC_MALE_2.54MM_90DEG

KISO-2560
SCK-2560
RESET-2560

+5V

GNDREF

2560 I2C PULLUP

R9 R_10K_1206
R10 R_10K_1206

2560-SCL
2560-SDA

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2560-D09

LORA COMMS CONTROLLER

SW3
SW_Push_SPDT

32BP BootReset Control

32BP I2C PULLUP

USB TO UART FOR LORA COMMS CONTROLLER

SLAVE – ICSP

GENERAL PURPOSE

MOD_USJT_ATMEGA328

Conn_02x06_BERGSTIK_Top_Bottom

J2
MINIFIT_RIGHT_ANGLED_Conn_02x06_Counter_Clockwise

1 12
2 11
3 10
4 9
5 8
6 7

ELEVATION_ANALOG_READ
AZIMUTH_ANALOG_READ

DIN_CONNECTOR_UP
DIN_CONNECTOR_DOWN
DIN_CONNECTOR_LEFT
DIN_CONNECTOR_RIGHT

GNDREF GNDREF

DIN-CONNECTOR-EXTENSION

ROTATOR CONTROL