

The schematic diagram illustrates the internal circuitry of the ADC module, centered around the XTR117 converter (U1). The circuit includes the following components and connections:

- Connectors:**
 - J1 (Connector_Socket_No_Hole_Top_2.54mm):** VBAT (1), GND (3), SDA (5), MOSI (7), SPI_CLK (9), RX (11), IO_UpperFloor (13), ADC_UpperFloor (15).
 - J2 (Connector_Pinheader_Bottom_2.54mm):** VBAT (1), GND (3), SDA (5), MOSI (7), SPI_CLK (9), RX (11), IO (13), ADC (15).
 - J3 (Terminal Block 2 Pins):** Loop+ (1), Loop- (2).
- Power and Grounding:**
 - VBAT is connected to the VREG pin (7) of U1.
 - GND is connected to the GND pins (3, 4, 16) of J1 and J2.
 - IO_UpperFloor (13) is connected to the IO pin (4) of U1.
 - ADC_UpperFloor (15) is connected to the IRET pin (2) of U1.
- Feedback Network:**
 - A feedback resistor R3 (100K) connects the output (pin 1) to the inverting input (pin 2).
 - A resistor R1 (15K) connects the inverting input (pin 2) to the non-inverting input (pin 3).
 - A resistor R2 (1K) connects the non-inverting input (pin 3) to the ADC pin.
- Op-Amp and Output Stage:**
 - The op-amp (U1) has its non-inverting input (pin 3) connected to the feedback network and the IO pin.
 - The output (pin 1) is connected to the feedback network and the Loop+ pin of J3.
 - The inverting input (pin 2) is connected to the feedback network and the IRET pin.
 - The op-amp is powered by VBAT (pin 7) and GND (pin 8).
- Other Components:**
 - Capacitors C1, C2, and C3 (10nF) are connected to the GND pins of J1 and J2.
 - Inductors L1 and L2 (HZ0603C601R-10) are connected to the VBAT and GND pins of J1.
 - Diode D1 (SMBJ40CA) is connected to the output (pin 1) and the Loop- pin of J3.
 - Diode D2 (BAS70_TP) is connected to the output (pin 1) and the Loop+ pin of J3.

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