

Applicable analog board versions: 109-13801-00H and 109-13801-00J

- 1) USB
- 2) 3.7V Li-ion battery
- 3) Any DC power supply with voltage 3.5V – 6V

The diagram illustrates the electrical connections between the Main board and the Analog board. The Main board section shows a USB port (J7) with pins D-, D+, ID, and GND. It also features a main board power input (V+) and a USB port power input (V+). A diode D2 (1N5819) is connected between the two V+ lines. The Analog board section shows a USB port (J2) with pins 1, 2, and 3. It also features an analog board power input (V+) and a USB port power input (V+). A switch SW4 is connected between the two V+ lines. The diagram also shows a battery connector (J6) with pins VIN, BATT, GND, and PROG. A charger board (J8) is connected to the battery connector. The diagram includes labels for the Main board, Analog board, Main board power, Analog board power, USB port, USB port power, V+, VBUS, YBUS, D-, D+, ID, GND, J7, J2, J6, J8, SW4, and Charger board.

When USB power is applied it powers the main board via diode D2. It also powers the analog board through J9 (on main board) pin1 to J2 (on analog board) pin1 if analog board and main board are connected. The same USB power will also charge battery through the path J9 pin2 – J2 pin2 – 118 board. The power switch SW4 does not function in this case.

The table below summarized the configurations for various power supply options.

Power Supply	Input Connector	Need Battery Charger?	Charger Board 118	JP4	Remarks
USB	USB □ (J7 on Main board)	No	Not install	open	
		Yes	Install	open	
3.7V Li-ion Battery	J6 on analog board	No	Not install	closed	Do not apply USB power simultaneously
		Yes	Install	open	
3.5V – 6V DC	J6 on analog board	No	Not install	closed	Do not apply USB power simultaneously

In general

- 1) **If you want to use USB only** just connect power supply through J7 on the main board. Keep JP4 open no matter battery charger board 118 is installed or not.
- 2) **If you want to use 3.7V Li-ion battery only** and don't need the charger, connect battery through J6 on the analog board and keep JP4 closed. Do not apply USB power in this case.
- 3) **If you want to use USB or Li-ion battery and want battery be charged by USB**, make sure charger board 118 is installed. Keep JP4 open.
- 4) **If you want to use a different power supply (voltage between 3.5V – 6V)** connect the power source to J6 on the analog board. Do not install charger board 118 and keep JP4 closed. Make sure USB power is not applied.

About JP5

JP5 is for compatibility to earlier H version main board. When the analog board is to use with H version main board JP5 should be closed. Otherwise, keep it open.

About JP6

JP6 is a bypass of power switch SW4. Keep this JP6 closed if SW4 is not used.

About power switch SW4

SW4 is for disconnecting power when battery is used. It won't disconnect USB power because diode D2 on the main board. If you want SW4 to disconnect USB power you can remove D2. Please note that after D2 is removed the main board won't get power without analog board connected even USB power has been applied.

LCD can't be turned off at charging?

The LCD will stay ON at battery charging for the same reason stated above. If you want LCD be turned off when battery is being charged you can remove the diode D2 on the main board. Then you will be able turn of LCD by SW4.

Installation of battery charger board 118

The following picture shows the position and orientation for installation of battery charger board 118.



