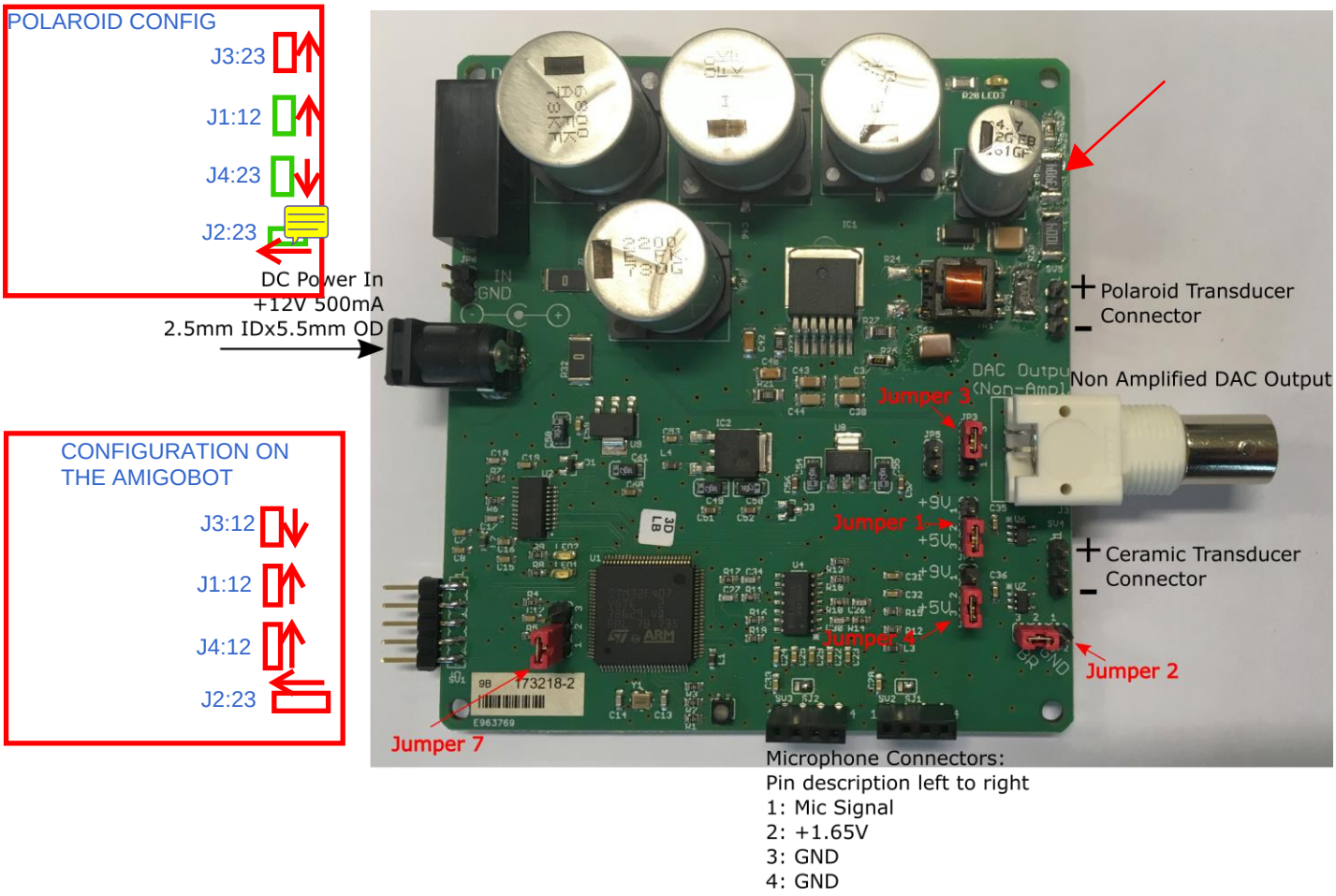
Quick Start Sonar Combo Board



Micro-USB Connector

- Provides +5V to low-power components (microcontroller, microphone amplifier, …)
- Enumerates serial interface on PC
- Serial interface is used to control state machine on microcontroller
    - Control RGB LED
    - Generate DAC output signal
    - Trigger DAC output signal
    - Trigger sampling of ADCs for microphone channels
    - Trigger both DAC and ADCs
    - Data transfers
- Possibility of reprogramming microcontroller

DC Power Connector (Barrel Jack with 2.5mm IDx5.5mm OD):

- +12V input power supply
- Powers linear amplifier for Polaroid transducer
- Provides +9V power to ceramic transducer amplifier

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Polaroid Transducer Connector

- Upper pin is the positive connection
- Center pin is not connected (floating)
- Lower pin in the negative connection

Ceramic Transducer Connector

- Upper pin is the positive connection
- Center pin is not connected (floating)
- Lower pin in the negative connection

BNC Connector:

- Always outputs the non-amplified analog signal originating from the DAC
- This signal either goes to the ceramic transducer or the Polaroid amplifier

Jumper Settings

- **Jumper 3: Amplifier Output**
  1-2: DAC signal is fed into ceramic transducer amplifier
  2-3: DAC signal is fed into Polaroid transducer amplifier

- **Jumper 2: Ceramic amplifier mode of operation**
  1-2: Ceramic amplifier output normal operation
  2-3: Ceramic amplifier output bridged operation

- **Jumper 1: Ceramic amplifier output amplitude option 1 (Normal and Bridged mode)**
  1-2: +9V power supply for Non-Inverting MOSFET driver (+12V DC Power required)
  2-3: +5V power supply for Non-Inverting MOSFET driver

- **Jumper 4: Ceramic amplifier output amplitude option 2 (Bridged mode)**
  1-2: +9V power supply for Inverting MOSFET driver (+12V DC Power required)
  2-3: +5V power supply for Inverting MOSFET driver

- **Jumper 7: Microcontroller USB Programming jumper**
  1-2: Normal operation
  2-3: When powered, a serial bootloader can be accessed for reprogramming. After programming, power off the board, reset the jumper to normal operation and power the board again for running the new program.