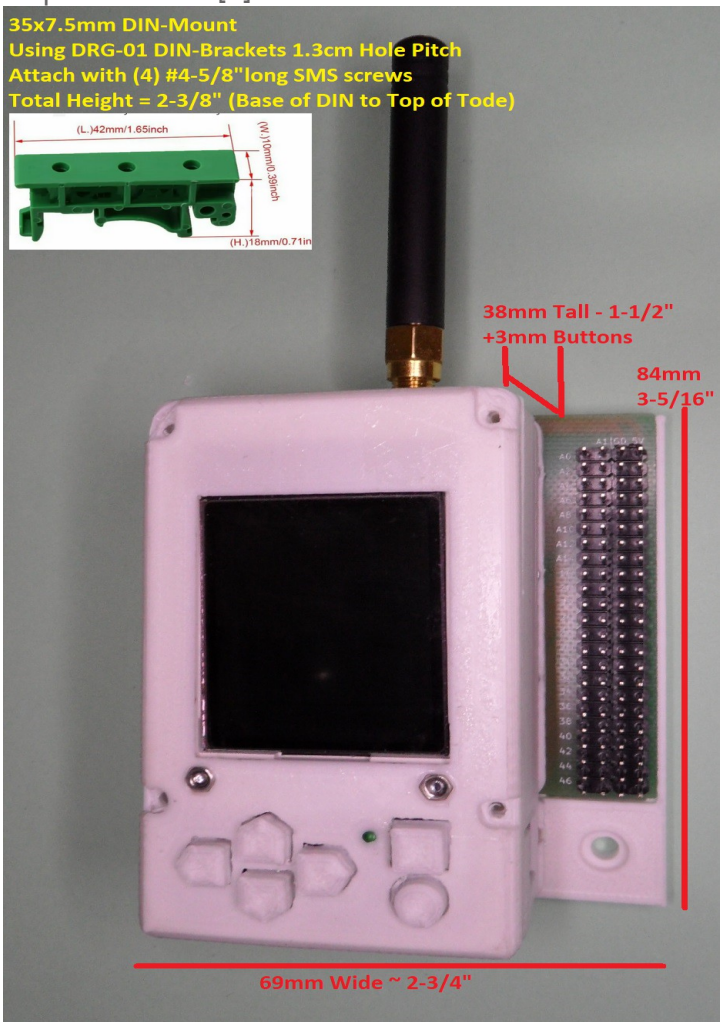
Tode-BIOPH-23BF

Hardware Development

Back-IO Pin Header Access

by TGit-Tech [http://www.TGit-Tech.com] Last Updated: 2024-02-19

Compatible with [S]ide-IO Tode-RCs - Models: BD241S



1. Table of Contents

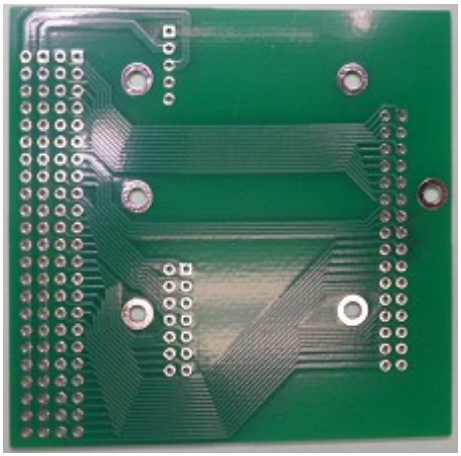
Table of Contents

TOTAL Screw-Terminals with Outdoor Enclosure: $32.04

2. Back-IO B23CF PCB

2.1 Bill of Materials (BOM) $2.85

2.1.1 Parts $0.93

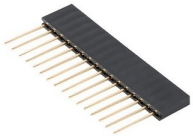


- IO-Access 23BF PCB
  - Design Software: Kicad
  - Folder: \Tode-IO\Tode-BIO\kicad\IO-ACCESS\SIOST
  - Manufacturer: jlcpcb.com
  - Batch Price: $46.43 per 50
  - Pricing: $0.93/ea

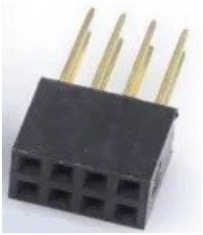
2.1.2 Supplies $1.14

(2) 2x40P Male Pin Header
Dupont 2.54mm-Pitch
PCB Pin-Header Array
@$0.21/ea = $0.42

(1) 2x3P Long Leg Socket
Dupont 2.54mm-pitch
PCB Digital-IO Tode-Side
@0.12/ea = $0.12



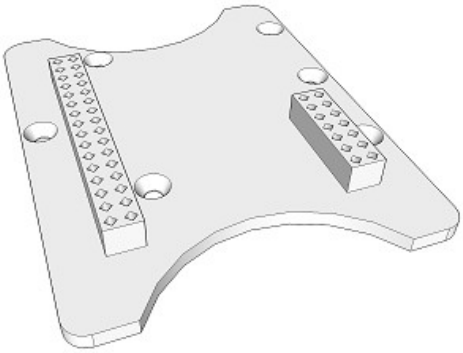
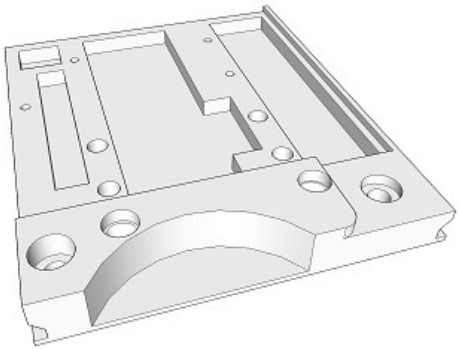
(2) 1x16P Long Leg Socket
Dupont 2.54mm-pitch
PCB Analog-IO Tode-Side
@0.17/ea = $0.34
– OR –
(2) 2x8P Long Leg Sockets
@0.15/ea = $0.30



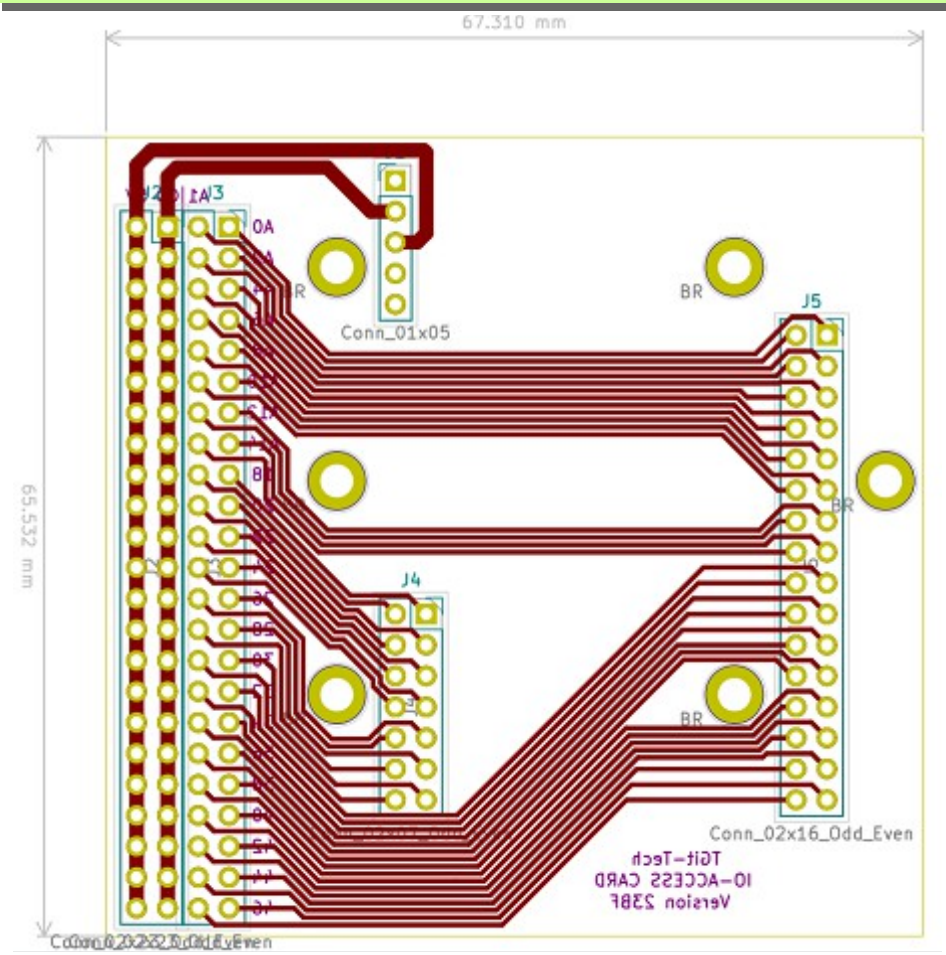
(1) 2x4P Long Leg Socket
Dupont 2.54mm-pitch
PCB Digital-IO Tode-Side
@0.14/ea = $0.14

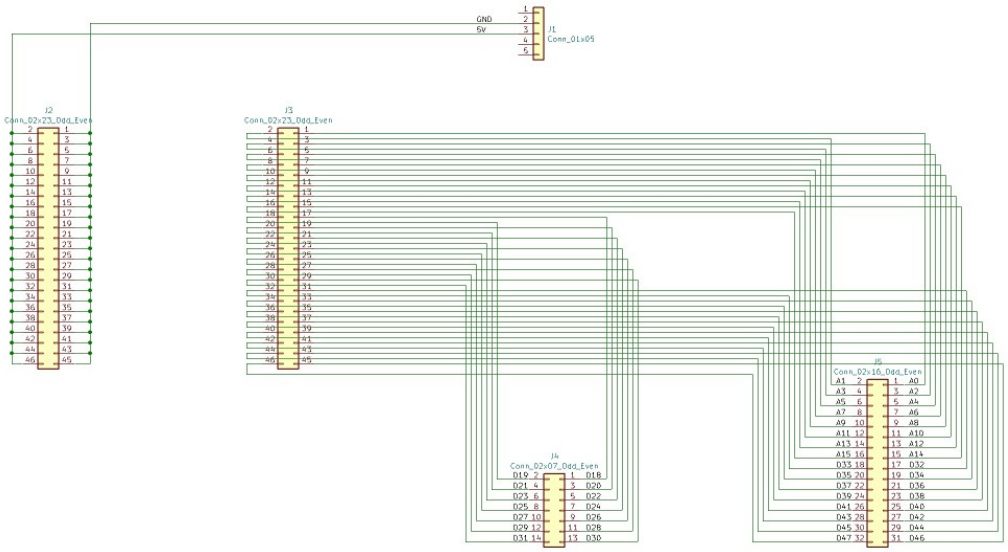
	**(4) #4 x 3/8"Phillips-Flat Screw** Front-Side to Back-Side $0.03/ea = $0.12		

2.1.3 3D-Prints $0.78

	**BIOPH-FrontSide.stl** Folder: ./Tode-IO-Options/Side-IO Commercial Box/3DPrints/stl Layer Height: 0.2mm Infill Density: 100% Supports: OFF Plastic: 9-grams @ $0.02/g = $0.18 Printer-use: @ $0.0015/g = $0.0135 Power: 1h 43m @ $0.01/hr = $0.0175 TOTAL COST: $0.21
	**BIOPH-BackSide.stl** Folder: ./Tode-IO-Options/Side-IO Commercial Box/3DPrints/stl Layer Height: 0.2mm Infill Density: 100% Supports: OFF Plastic: 25-grams @ $0.02/g = $0.50 Printer-use: @ $0.0015/g = $0.0375 Power: 3h 07m @ $0.01/hr = $0.03 TOTAL COST: $0.57

2.2 Diagram

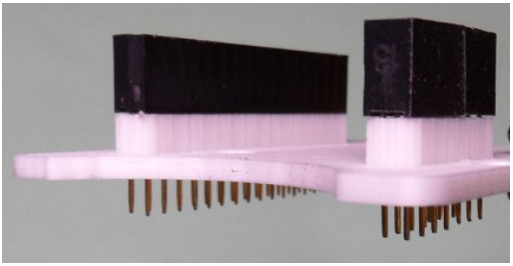

67.310 mm
65.532 mm
J3
J1
J2
Conn_01x05
J5
J4
BR
Conn_02x16_Odd_Even
Tbit-Tech
IO-ACCESS CARD
Version 23BF



2.3 Assembly

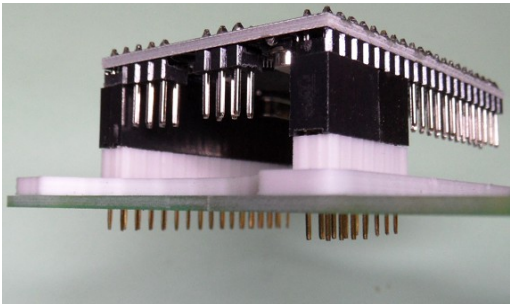
2.3.1 Sockets in Front-Side

1. Press (2) 1x16P Long Leg Sockets into Front-Side 3DPrint.
2. Insert (1) 2x3P and (1) 2x4P Long Leg Dupont Sockets into Front-Side 3DPrint.
   2.2. Sand the socket ends for a proper fit.



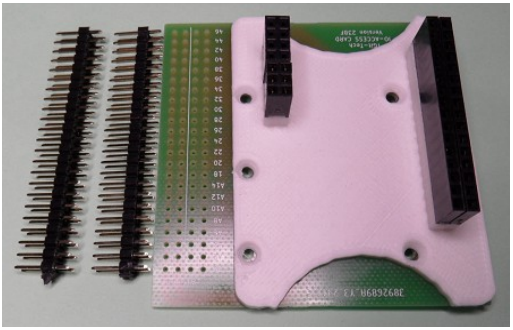
2.3.2 Front-Side on PCB

3. Press Front-Side with installed Pin Sockets into the PCB holes.
4. Plug in an Arduino Mega-Pro for correct plug alignment.
5. Solder the Sockets to the PCB.
6. Trim excess Pin Length



2.3.3 Pin Headers

7. Cut (2) 2x40P Pin Headers to 32-Pin Lengths to fit the Pin Header Array.

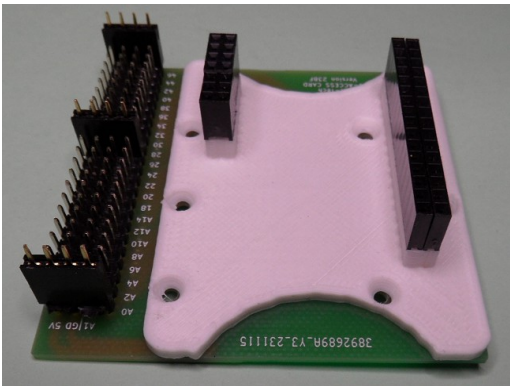


2.3.4 Solder Pin Header Array

8. Install the (2) 2x23-Pin Headers into the PCB.

9. Using (3) 1x4P Sockets keep Pin Header array pins straight.

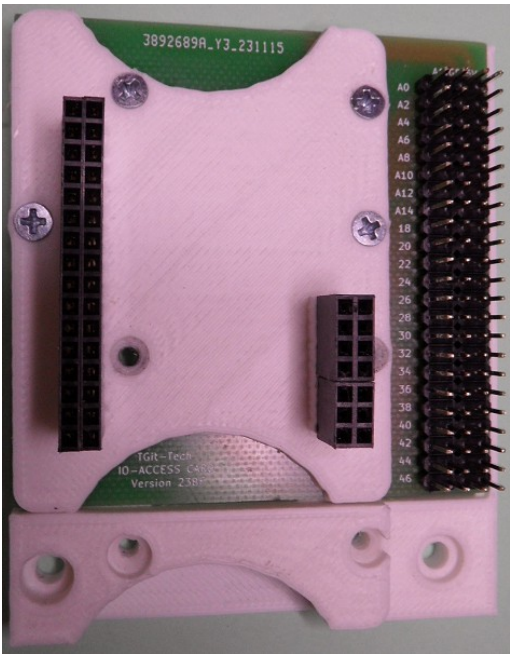
10. Solder all pins to PCB.



2.3.5 Attach Back-Side

11. Place Front-Side assembly on Back-side 3D Print as pictured.

12. Fasten with (4) #4 x 3/8in Flat-Head SMS screws.



3. DIN-Mount Option

3.1 Bill of Materials (BOM) $0.82

3.1.1 Parts $0.66

- (2) DIN Mount Brackets
  - DRG-01 for 35 x 7.5mm DIN Rail
  - Pricing: $0.33/ea = $0.66

3.1.2 Supplies $0.16

(4) #4 x 5/8"Phillips-Flat Screw
Standoff-Label
$0.04/ea = $0.16

3.2 Assembly

3.2.1 Screw on DIN Brackets

1. Using (4) #4 x 5/8in Flat-Head SMS screws attach the DIN brackets with their pry-release tabs facing the bottom to the BIOPH Assembly.

2. Attach to desired DIN Rail.