BII-5020 Series Power Amplifier
Driving Sonar Transducer / Projector

DESCRIPTION

BII-5020 series is 62-watt linear wideband power amplifier, which offers low distortion and low power consumption to underwater acoustic systems. BII-5020 series can operate in switch mode to deliver 140w power to transducers.

APPLICATIONS

<table>
<thead>
<tr>
<th>Source Level Capability: 187.1 +DI (dB re µPa)</th>
<th>Underwater Wireless Communication / Modem</th>
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</thead>
<tbody>
<tr>
<td>Sub-bottom Investigation, Seafloor-mapping System</td>
<td>FSK, PSK and Spread Spectrum System</td>
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<tr>
<td>Underwater Sound Velocimeter/Sound Velocity Probe</td>
<td>High Speed/Frequency Short Range Communication</td>
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<tr>
<td>Short Range Navigation, Inspection and Survey</td>
<td>Phantom Echo Generation</td>
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<tr>
<td>Transmitting Array Shading</td>
<td>Phantom Generation of Clicks, Whistles and Pulse Trains</td>
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<tr>
<td>Low Frequency Long Range Communication</td>
<td>Audiogram Studies/Audiometry</td>
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<tr>
<td>Object Detection and Tracking</td>
<td>Psychoacoustic &amp; AEP/ABR Experiments on Aquatic Mammals</td>
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<tr>
<td>Distance Gage, Navigation, Obstacle Avoidance</td>
<td>Bioacoustic and Biological Research on Whales and Dolphins</td>
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ABSOLUTE MAXIMUM RATINGS

| Minimum DC Supply Voltage: | +8 VDC |
| Maximum DC Supply Voltage: | +44 VDC |
| Output Peak Current: | 5 A |

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Linear Power Amplifier</th>
<th>BII-5021</th>
<th>BII-5022</th>
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<tbody>
<tr>
<td>Size:</td>
<td>Round PCB, ØDxH=101.6x50.8 mm</td>
<td>Rectangular PCB, LxWxH=68.6x36.1x36mm</td>
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<tr>
<td>Mounting:</td>
<td>4xØD4.87mm through-holes</td>
<td>4xØD3.2mm through-holes</td>
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<tr>
<td>Weight in Air:</td>
<td>180 grams</td>
<td>70 grams</td>
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<tr>
<td>Cable:</td>
<td>6” or 0.15m wires</td>
<td>60mm wires</td>
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<tr>
<td>Connector:</td>
<td>Wire Leads</td>
<td>Wire Leads</td>
</tr>
<tr>
<td>Miscellaneous:</td>
<td>Gain: 29.25 dB or 29</td>
<td></td>
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<tr>
<td>Power Bandwidth (-3dB):</td>
<td>Linear Mode: 150Hz to 100kHz@+36VDC, 150Hz to 200kHz@+24VDC, 150Hz to 500kHz@+12VDC. Switch Mode: 150Hz to 30kHz.</td>
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<tr>
<td>Input Impedance:</td>
<td>200KΩ</td>
<td></td>
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<tr>
<td>Maximum Input Level:</td>
<td>Linear Mode: 2Vpp or (2*Supply Voltage -8Vpp)/29, whichever is less. Switching Mode: Pulse and Square Waveform, TTL/CMOS Level or 2Vpp to 5Vpp.</td>
<td></td>
</tr>
<tr>
<td>RMS Power:</td>
<td>Linear Mode: 62W@+36VDC, 38W@+24VDC, 6W@+12VDC. Switch Mode: 140W@+36VDC; 80W@+24VDC; 18W@+12VDC.</td>
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<tr>
<td>Max. Output Current:</td>
<td>5 A</td>
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<tr>
<td>Shutdown Control Voltage:</td>
<td>TTL/CMOS Compatible. Logic Low &quot;0&quot;: ≤ 0.8V; Logic High &quot;1&quot;: 2.4V to Supply Voltage Level. Logic High: Output enabled; Logic Low: Output Disabled.</td>
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<tr>
<td>Supply Voltage:</td>
<td>+8 to +36 VDC</td>
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<tr>
<td>Suggested DC Supply:</td>
<td>Marine Battery, Automobile Battery, Fixed DC Linear Power Supply, Not Included. DO NOT use variable power supply whose maximum supply voltage is higher than the above rated voltage. DO NOT use switching mode DC power supply.</td>
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<tr>
<td>Quiescent Current:</td>
<td>36 mA active; 16 mA shutdown.</td>
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<td>Operating Temperature:</td>
<td>-40°C to 85°C</td>
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<tr>
<td>Storage Temperature:</td>
<td>-50°C to 105°C</td>
<td></td>
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</tbody>
</table>
BII-5021 ST-BY SWITCH (Shutdown SWITCH)
OFF Position: BII-5021 is in operating mode.
DIO Position: TTL/CMOS Logic High -> BII-5021 is in operating mode.
TTL/CMOS Logic Low -> BII-5021 is in Shutdown mode.

BII-5021 TERMINALS and WIRINGS
Input and Shutdown Terminal
Pin 1: ST-BY, White, 6” Wire
Pin 2: COM, Black, 6” Wire
Pin 3: IN+, Blue, 6” Wire
Pin 4: IN-, Yellow, 6” Wire
Pin 5: COM, Black, 6” Wire

Output and Power Supply Terminal
Pin 1: +Vs, Red, 6” Wire
Pin 2: +Vs, Red, 6” Wire
Pin 3: COM, Black, 6” Wire
Pin 4: OUT+, Blue, 6” Wire
Pin 5: OUT-, Yellow, 6” Wire

BII-5021 SUGGESTED WIRING:

Waring: Outputs of Power amplifier are differential, DO NOT Connect Out + or Out - to COM.
**BII-5021 Physical Size:**

- 4 - Φ4.9mm (0.192 inch) mounting holes
- Equally Spaced on 86.4mm (3.4 inch) P.C.D.
- P.C.D.: Pitch Circle Diameter

**BII-5021 SHIPMENT:**

1. Assembled BII-5021 board Qty.: 1
2. Input and ST-by Plug with 6” wires Qty.: 1
3. Output and Power Supply plug with 6” wires Qty.: 1

**BII-5022 CONTROLS and TERMINALS:**

- **IN+**
  - Input Signal
  - Wires' Colour: White

- **IN-**
  - Input Signal common
  - Wires' Colour: Blue

- **COM**
  - Power Supply Common
  - Wires' Colour: Black

- **+Vs**
  - Power Supply Positive Voltage
  - Wires' Colour: Red

- **OUT-**
  - Negative Output
  - Wires' Colour: Yellow

- **OUT+**
  - Positive Output
  - Wires' Colour: Blue

- **OUT COM**
  - Output Common
  - Default: PCB Via Pad, BII does not solder wire.

- **ST-BY**
  - Shut Down Control
  - Default: PCB Via Pad, BII does not solder wire.

- **ST-BY COM**
  - Shut Down Control Common
  - Default: PCB Via Pad, BII does not solder wire.

- **SD**
  - Shut-down pin
  - Default: PCB Via Pad, BII does not solder wire.

- **SW**
  - Shut-down pin
  - Default: SW is wired to OFF

- **OFF**
  - Shut-down OFF pin
  - Default: OFF is wired to SW

**Signal**

**Wires' Colour**

Default Factory-set:

- SW is wired to OFF, shut-down function is not available.

To use shut-down function:

1. Cut off the wire between SW and OFF
2. Solder a wire from SW to SD.
3. Solder wires to ST-BY and ST-BY COM respectively.
BII-5022 SUGGESTED WIRING: Shut-down function is not available, SW is wired to OFF.

Waring: Outputs of Power amplifier are differential, DO NOT Connect Out + or Out - to COM.

BII-5022 SUGGESTED WIRING: Shut-down function is available.
To use shut-down function: Cut off the wire between SW and OFF; Solder a wire from SW to SD; Solder wires to ST-BY and ST-BY COM respectively.

Waring: Outputs of Power amplifier are differential, DO NOT Connect Out + or Out - to COM.

BII-5022 Physical Size:

BII-5022 SHIPMENT:
Assembled BII-5022 board Qty.: 1