BLD750
Brushless DC Motor Drive

Description

The BLD750 BLDC motor drive is a high performance, cost-effective 3phase BLDC motor drive, which can provide power output Max 750VA. The design is based on advanced DSP technology and feature high torque, low noise, low vibration, PID speed loop, PID current loop, over current protection, over load protection and a combined use of manual speed adjustment and automatic speed adjustment.
## Connection Definition

<table>
<thead>
<tr>
<th>Mark</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC+/DC-</td>
<td>DC Power Input （DC24V~DC48V）</td>
</tr>
<tr>
<td>U,V,W</td>
<td>Motor Lead Wire</td>
</tr>
<tr>
<td>Hu,Hv,Hw</td>
<td>Hall Sensor Lead Wire</td>
</tr>
<tr>
<td>REF+</td>
<td>Hall Sensor Power Supply +</td>
</tr>
<tr>
<td>REF-</td>
<td>Hall Sensor Power Supply -</td>
</tr>
<tr>
<td>VCC</td>
<td>External Potentiometer Power Supply (Internal Power Supply Only)</td>
</tr>
<tr>
<td>SV</td>
<td>External Potentiometer (No Connection When Adjusting Speed With Internal Potentiometer) or Pulse Rate In Note①</td>
</tr>
<tr>
<td>COM</td>
<td>Common （Low Level/Ground）</td>
</tr>
<tr>
<td>F/R</td>
<td>Direction: Low Level/CCW High Level or No Connection/CW Note ②</td>
</tr>
<tr>
<td>EN</td>
<td>Enable: High Level/Stop Low Level/Run Note ②</td>
</tr>
<tr>
<td>BRK</td>
<td>Quick Brake: High Level/Stop Low Level/Run Note ②</td>
</tr>
<tr>
<td>SPEED</td>
<td>Speed Signal Output</td>
</tr>
<tr>
<td>ALARM</td>
<td>Alarm Signal Output</td>
</tr>
</tbody>
</table>

**Note①**: Potentiometer/10KΩ or analog signal DC 0V~+5V (Change internal switch J1/DC0-10V). Turn off the internal potentiometer RV when using an external potentiometer to adjust the motor speed.

**Note②**: High level/5V (5mA)
## Electrical Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Rated</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Hall Sensor Angle</td>
<td></td>
<td></td>
<td>120°/240°</td>
<td></td>
</tr>
<tr>
<td>DC Power Input</td>
<td>18</td>
<td>48</td>
<td>50</td>
<td>V</td>
</tr>
<tr>
<td>Drive Current Output</td>
<td>0</td>
<td>25</td>
<td>45</td>
<td>A</td>
</tr>
<tr>
<td>Suitable Motor Speed</td>
<td>0</td>
<td></td>
<td>20000</td>
<td>rpm</td>
</tr>
<tr>
<td>Hall Sensor Voltage</td>
<td>4.5</td>
<td>5</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>Hall Sensor Current</td>
<td></td>
<td>20</td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>External Potentiometer</td>
<td></td>
<td>10K</td>
<td></td>
<td>Ω</td>
</tr>
</tbody>
</table>

### Peak Power Output Setting:

#### P-sv Tune

![P-sv Tune Diagram]

**Note:** To protect the motor, set the arrow number as the same as the motor nominated power. Whenever overload occurs the drive will turn out to be the protection mode.

### Connection:
Mechanical Drawings:

- 48mm x 10.5mm
- 30mm x 151mm
- 5mm
- 109mm x 97mm

Speed Adjustment Instruction:

Motor Speed Adjusted By The Internal Potentiometer RV:
SW1/ Off (Factory setting)

- **Motor Speed Adjusted By Analog DC 0V~+5V Input:**
  SW1/ Off (Factory setting) set J1 (internal) as [ ] (user Setting)
  RV—Turn Off

- **Motor Speed Adjusted By Analog DC 0V~+10V Input:**
  SW1/ Off (Factory setting) set J1 (internal) as [ ] (user Setting)
  RV—Turn Off

- **Motor Speed Adjusted By Pulse Rate Input:**
  Pulse rate: 0K—3KHZ Speed linear modulation
  Pulse amplitude: 5V   Pulse duty ratio: 50%
  SW1/ On (User setting)      RV—Turn Off
  J7 (Internal)/ Switch on with the jumper cap on J1 (User setting)

- **Motor Speed Quick Response Setting:**
  SW2/ On (User setting): PID closed loop--quick speed response
  SW2/Off (Factory setting): Open loop--Normal speed response

- **Motor Speed Signal Output:**
  Connecting SPEED and COM to get pulse output F=N*P/60
  F—Pulse output frequency
  P—Pole number of BLDC motor

- **Drive Alarm Output:**
  When drive alarm, it will break over with the port of COM and be low level. The drive stop to work and alarm light run.

- **Lead Wire Connection:** Take care of the sequence of U,V,W

Motor Parameter set by ICAN BLDD-01 (Optional) :

- **RS232 Communication Interface CP-in**
  The BLDD48-45A BLDC motor drive support RS232 communication Protocol to set motor run-up time, etc. When choose ICAN BLDD-01 as host controller, the operating process and instruction as below:

- **ICAN BLDD-01 Motor Setting Panel Operating Process:**
  Connect to CP-in (BLDD48-45A)
  SW1/ Off (Factory setting)      RV—Turn Off
### BLDD-01 Parameter Setting Table:

<table>
<thead>
<tr>
<th>Function code</th>
<th>Mode</th>
<th>Setting range</th>
<th>Unit</th>
<th>Factory setting</th>
<th>Alteration</th>
</tr>
</thead>
<tbody>
<tr>
<td>P000</td>
<td>Control mode</td>
<td>00 BLDD-01 control 01 None</td>
<td>None</td>
<td>None</td>
<td>Panel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>host control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P001</td>
<td>Panel setting speed</td>
<td>0~Rated speed</td>
<td>RPM</td>
<td>★</td>
<td></td>
</tr>
<tr>
<td>P002</td>
<td>Run-up time</td>
<td>0.1~9.9</td>
<td>S</td>
<td>0.2</td>
<td>★</td>
</tr>
<tr>
<td>P003</td>
<td>Motor pole number setting</td>
<td>1~99</td>
<td>Pole pairs</td>
<td>4</td>
<td>★</td>
</tr>
<tr>
<td>P004</td>
<td>CW, CCW</td>
<td>01 CW 00 CCW</td>
<td>01</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>P005</td>
<td></td>
<td></td>
<td></td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>P006</td>
<td></td>
<td></td>
<td></td>
<td>Reserved</td>
<td></td>
</tr>
</tbody>
</table>

- **BLDD-01 Panel Setting Process:**
  1. Turn on the power supply, press <Set> to stop the motor
  2. Press <▲> or <▼> to choose the mode you need (Press Esc return and
     motor running)
  3. Press <Set> enter into parameter mode (Press Esc return and motor running)
  4. Press <◄> or <►> to change the parameter (flashing)
  5. Press <Set> to reserve, parameter stop to flash. Press <Esc> return and
     motor running.

- **Panel Protection Mode:**
  When the system running, panel nixie light shows **Err×**
  **Err0** represents Over-voltage or Over-temperature protection
  **Err1** represents Over-current protection
  **Err2** represents Hall sensor error protection

- **Motor Parameter set by other host controller:**
  BLDD48-45A Communication Protocol (RS232)
1. Communication Interface:
   Asynchronous serial communication
   Baud rate: 2400
   Start bit: 1 bit
   Stop bit: 1 bit
   Data bit: 8 bits
   Even/odd parity: none
   Communication interface voltage: 3.3V

2. Communication Protocol:

   Function 1: Motor speed controlled by drive BLD-750 itself
   Communication format: “i”
   Instruction: send a character

   Function 2: Motor speed controlled by host computer
   Communication format: “o”
   Instruction: send a character

   Function 3: Motor speed set by host computer
   Communication format: “v” 0X00, 0X00
   Instruction: send a character “v” then two hexadecimal numbers
               the high 16bits, the low 16 bits

   Function 4: Run-up time
   Communication format: “y” 0X00
   Instruction: send “y” then a hexadecimal number