Variable Regulated DC Power Supplies
PAD-LA Series

Type III, Type IV, Maximum Output Voltage (16 V to 250 V) 10 models
High Performance and High Reliability Power Supplies in various models
The PAD-LA Series are renewal version of our long seller models “PAD-L Series” as known for high performance and high reliability of variable DC regulated power supplies used with excellent regulators. The PAD-LA Series has polished features and performance also it has improved the “easy to use” operation by adopting an advanced design and we aim to establish the “Basic Power Supply” which can be used in all fields of application from the R&D, Quality Control to the Manufacturing site.

- Use large LED monitor with high visibility for 4 digits display
  Adopting with the Digital display from former Analog type, which display the output Voltage, and Current. Furthermore, by locating each indication of the CV/CC and ON/OFF operation around the display, it can easily confirm the required information immediately.

- Output and Set Switch
  In separate to the Power Switch of the unit, it has equipped the “Output Switch” and also the “SET Switch” which enable to confirm the setting value of voltage and current even when the output is off.

- Putting together of the mode setting switches
  Improving the convenience of operation, we have put together all of the switches located on the upper right area of the unit for the function of Output. Adjusting display, variable resistor for setting of OVP and OCP, Setting operation mode for Analog Remote control, one control parallel operation (or series operation) to set for Master or Slave unit.

- OCP (Over Current Protection circuit)
  In addition to OVP (Over Voltage Protection circuit) function, it is equipped with OCP (Over Current Protection circuit) as standard.

- Output Monitoring
  It is equipped with the Monitor Output Terminal for Output Voltage and Output Current as standard. The Monitor Output for Output Voltage is 0 V to approx. 10 V at 0 V to the rated output voltage, and for the Output Current is 0 V to approx. 1 V at 0 V to the rated output current.

- Control Terminals
  Adopting the screw less wire clamp for the control terminal block on the rear panel that was used to be the harmonica terminal.

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### Lineup

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Model</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 V</td>
<td>PAD16-100LA</td>
<td>III</td>
</tr>
<tr>
<td>36 V</td>
<td>PAD36-60LA</td>
<td>III</td>
</tr>
<tr>
<td>60 V</td>
<td>PAD60-35LA</td>
<td>III</td>
</tr>
<tr>
<td>72 V</td>
<td>PAD72-30LA</td>
<td>III</td>
</tr>
<tr>
<td>110 V</td>
<td>PAD110-20LA</td>
<td>III</td>
</tr>
<tr>
<td>250 V</td>
<td>PAD250-8LA</td>
<td>III</td>
</tr>
<tr>
<td>36 V</td>
<td>PAD36-100LA</td>
<td>IV</td>
</tr>
<tr>
<td>60 V</td>
<td>PAD60-60LA</td>
<td>IV</td>
</tr>
<tr>
<td>110 V</td>
<td>PAD110-32LA</td>
<td>IV</td>
</tr>
<tr>
<td>250 V</td>
<td>PAD250-15LA</td>
<td>IV</td>
</tr>
</tbody>
</table>
Computer Control

By using optional controller Model PIA4810, the PAD-LA Series can be controlled through by the computer.
Note: It is required for the modification of replacing ROM in case of using controller Model PIA3200.

■ System Expansion for PAD-LA Series / System Layout

Example for System Layout PAD-LA 1

<table>
<thead>
<tr>
<th>Description of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Output Voltage Setting</td>
</tr>
<tr>
<td>● Output Current Setting</td>
</tr>
<tr>
<td>● Read back of Output Voltage</td>
</tr>
<tr>
<td>● Read back of Output Current *1</td>
</tr>
<tr>
<td>● Output ON/OFF</td>
</tr>
</tbody>
</table>

Example for System Layout PAD-LA 2

<table>
<thead>
<tr>
<th>Description of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Output Voltage Setting</td>
</tr>
<tr>
<td>● Output Current Setting</td>
</tr>
<tr>
<td>● Output ON/OFF</td>
</tr>
</tbody>
</table>

*1: For Model PAD16-100LA/PAD36-60LA/PAD36-100LA/PAD60-60LA, please ask our Sales for details.
*2: It is required for the modification of attaching DIN connector to the Power Supply unit.

External Analog Control function

● C.V. Control by external voltage
  (0 V to rated value/0 V to 10 V) *1
● C.C. Control by external voltage
  (0 A to rated value/0 V to 10 V) *1
● C.V. Control by external resistor *2
● C.C. Control by external resistor *2
● Output ON/OFF by external contact *3
● Power Switch shut off by external contact *4

*1: Voltage and current knob on the front panel can vary the output.
*2: It can be changed by Setting Switch for controlling the "0 to rated value/10 kΩ to 0 Ω" from the normal setting of "0 to rated value/0 Ω to 10 kΩ".
*3: The Setting Switch can change. The Output OFF for using contact open as it is normally used for Output OFF by contact short.

Various functions

● Series Operation
  (One control: Master/Slave configuration) *4
● Parallel Operation
  (One control: Master/Slave configuration) *5
● Remote Sensing function
● OVP (Over Voltage Protection circuit)
● OCP (Over Current Protection circuit)
● OHP (Over Heat Protection circuit)
● Output Voltage monitor (0 V to 10 V)
● Output Current monitor (0 V to 1 V)

*4: It can be changed for contact open shut off by modification as it is normally shut off by contact short.
*5: Master/Slave configuration can be used for the same rated output model
  (Series Operation: Up to 2 units for 250 V model, up to 3 units for other models, Parallel Operation: up to 3 units)
Panel Description

Front View

■ TYPE III

1 POWER switch
2 OVP/OCP switch
3 SET switch
4 OUTPUT switch
5 OUTPUT ON/OFF indicator
6 Voltmeter
7 CV indicator
8 VOLTAGE knob
9 Adjustment variable resistor

■ TYPE IV

10 OVP variable resistor
11 OCP variable resistor
12 Remote control setup switch
13 M/S switch
14 CURRENT knob
15 CC indicator
16 Ammeter
17 Sensing short bar

Rear View

18 Sensing terminal
19 DC OUTPUT terminal
20 Exhaust port
21 Cable clamp
22 AC INPUT terminal block
23 Control terminal block
24 Chassis terminal
25 Grounding short bar
Rack mount bracket

Note: The unit has intake port for the ventilation of forced cooling, therefore, it is required to install the blank panel in case of assembling the unit into the rack mount system. Please refer to the detail in the "Sample figure of blank panel assembly".

**Bracket installation example**

![Bracket installation example](image)

**Blank panel**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Inch rack EIA standard</th>
<th>Milli rack JIS standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plate type</td>
<td>Mesh type</td>
</tr>
<tr>
<td>1</td>
<td>BP191</td>
<td>BP191-M</td>
</tr>
</tbody>
</table>

Note: It is not necessary for installing the blank panel in case of rack mount for type IV.

**Blank panel installation example**

Required size for the width of blank panel (unit JIS: 50 mm, EIA: 44.45 mm)
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Voltage (AC)</th>
<th>Load Regulation</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Input Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CV</td>
<td>CC</td>
<td>CV CC CV CC</td>
<td>Type</td>
<td>kg/lb</td>
</tr>
<tr>
<td></td>
<td>V A</td>
<td>mVRms</td>
<td>mArms</td>
<td>mV mA mV mA</td>
<td></td>
</tr>
<tr>
<td>PAD16-100LA</td>
<td>0 to 16</td>
<td>0 to 100</td>
<td>0.5 100</td>
<td>1 3 2 5</td>
<td>III</td>
</tr>
<tr>
<td>PAD36-60LA</td>
<td>0 to 36</td>
<td>0 to 60</td>
<td>0.5 10</td>
<td>1 3 2 5</td>
<td>III</td>
</tr>
<tr>
<td>PAD36-100LA</td>
<td>0 to 36</td>
<td>0 to 100</td>
<td>0.5 50</td>
<td>1 3 2 5</td>
<td>IV</td>
</tr>
<tr>
<td>PAD60-35LA</td>
<td>0 to 60</td>
<td>0 to 35</td>
<td>0.5 8</td>
<td>1 3 2 3</td>
<td>III</td>
</tr>
<tr>
<td>PAD60-60LA</td>
<td>0 to 60</td>
<td>0 to 60</td>
<td>0.5 20</td>
<td>1 3 2 5</td>
<td>IV</td>
</tr>
<tr>
<td>PAD72-30LA</td>
<td>0 to 72</td>
<td>0 to 30</td>
<td>0.5 6</td>
<td>1 3 2 3</td>
<td>III</td>
</tr>
<tr>
<td>PAD110-20LA</td>
<td>0 to 110</td>
<td>0 to 20</td>
<td>1 4</td>
<td>1 1 2 3</td>
<td>III</td>
</tr>
<tr>
<td>PAD110-32LA</td>
<td>0 to 110</td>
<td>0 to 32</td>
<td>1 10</td>
<td>1 3 2 5</td>
<td>IV</td>
</tr>
<tr>
<td>PAD250-8LA</td>
<td>0 to 250</td>
<td>0 to 8</td>
<td>5 4</td>
<td>2 1 3 3</td>
<td>III</td>
</tr>
<tr>
<td>PAD250-15LA</td>
<td>0 to 250</td>
<td>0 to 15</td>
<td>5 5</td>
<td>2 1 3 3</td>
<td>IV</td>
</tr>
</tbody>
</table>

- **Constant voltage temperature coefficient**: 50 ppm/°C (standard value)
- **Transient response time**: Time until the output voltage recovers to within 0.05 % +10 mV of the set value when the output current changes 5 % to 100 %.
- **Ripple noise**: 5Hz to 1MHz, ±3dB bandwidth, average value indication, measured by grounding plus or minus output with an rms value display AC voltage waveform
- **Meters**
  - **Voltmeter**: Maximum display 4 digits
  - **Display error**: ±(0.5% of reading+5 digit)*1
- **Ammeter**: Maximum display 4 digits
  - **Display error**: ±(1% of reading+5 digit)*1
- **Ground**: Plus or minus terminal can be grounded
- **Isolation Voltage**: ±250 V DC excluding PAD110-20LA/PAD250-8LA/PAD110-32LA/PAD250-15LA of which Isolation Voltage is ±500 V
- **Insulation resistance**: Chassis-input: 500 V DC 30 MO min.
  - Output-chassis: 500 V DC 20 MO min.
- **Withstanding voltage**: No abnormalities when 1500 VAC applied for 1 minute.
- **Operating temperature range**: 0 to 40 °C
- **Operating humidity range**: 10 to 90 %
- **Cooling system**: Forced air cooling using a fan
- **Protection devices**
  - **Constant voltage, constant current automatic crossover**
  - **Adjustable Overvoltage Protection circuit (OVP)**
    - (preset voltage range 10 % to 110%)
  - **Adjustable Overcurrent Protection circuit (OCP)**
    - (preset current range 10 % to 110 %)
  - **Voltage detection circuit**
    - (smoothing capacitor section)
  - **Overheating protector (OHP)**
    - Semiconductor cooling heat sink section
  - **Temperature fuse (subtransformer)**
  - **Input/output fuse**
  - **Input surge absorber**
- **Dimensions**
  - Type III: 430(16.93˝)W X 218(8.58˝)H X 549(21.61˝)Dmm (inch)
  - Type IV: 430(16.93˝)W X 484.6(19.08˝)H X 465(18.31") Dmm (inch)
- **Accessories**
  - Operation manual: 1 copy, Guard caps: 2 pcs, Weight sticker: 1 sheet
  - Type III
  - Power cord: 3-core cabtire cable for 200 VAC 1 pc. (3.5 mm², approx. 3 m)
  - Type IV
  - Power cord: Single wire cable 3 pcs. (8 mm², approx. 3 m)
  - Cable clamper: 1 set

Dimensions

**Type III**

**Type IV**

Unit: mm
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