# PD Series

40-110 WATTS WIDE INPUT

## Features

- **Low cost**
- **100% burn-in**
- **Small size, light weight**
- **Overvoltage protection**
- **Overcurrent protection**
- **Three wide input ranges: 10–30VDC, 20–60VDC, 30–90VDC**



## Specifications

### INPUT

| | |
|---|---|
| Input voltage | 10–30VDC (PD40 & 65 – L series)<br>20–60VDC (PD40 & 65 – M series)<br>30–90VDC (PD40 & 65 – H series)<br>10–20VDC (PD110 – L series)<br>18–36VDC (PD110 – M series)<br>36–72VDC (PD110 – H series) |
| Input current | 4.1A (rms) for 24VDC typical for PD65<br>2.1A (rms) for 48VDC typical for PD65<br>1.5A (rms) for 72VDC typical for PD65 |

### OUTPUT

| | |
|---|---|
| Output voltage/current | See rating chart |
| Total output power | 40W, 65W and 110W |
| Ripple & noise | 1% pk-pk max. |
| Overvoltage protection | Set at 112–132% of its nominal output voltage |
| Overcurrent protection | All outputs protected to short circuit conditions |
| Temperature coefficient | All outputs ±0.04% per °C maximum |
| Transient response | Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500µs after a 25% step load change |
| Output derating | See notes |

### OPERATING

| | |
|---|---|
| MTBF | 100,000 hours minimum at full load at 25°C ambient |
| Switching frequency | 32kHz ±5kHz |
| Efficiency | 70% minimum at full load |
| Line regulation | ±0.5% maximum at full load |
| Withstand voltage | 1000VDC from input to output |

### ENVIRONMENTAL

| | |
|---|---|
| Operating temperature | 0°C to +70°C |
| Derating | Derate from 100% at +50°C linearly to 50% at +70°C |
| Storage temperature | -40°C to +85°C |
| Relative humidity | 5%–95% non-condensing |

### STANDARDS AND APPROVALS

| | |
|---|---|
| C-tick | AS/NZCISPR11 Group 1, Class A |

# PD Series

40-110 WATTS WIDE INPUT

## Selection Table

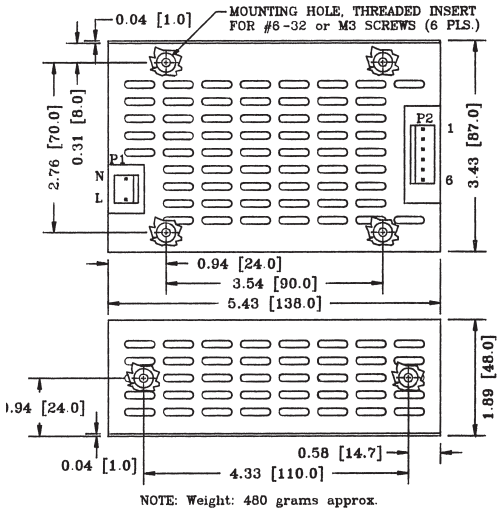
### PD40 SERIES (40W)

| MODEL NUMBER | OUTPUT #1 | | | | OUTPUT #2 | | | | OUTPUT #3 | | | | MAXIMUM OUTPUT POWER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | |
| PD40-10 | 5V | 0A | 8.0A | 2% | | | | | | | | | 40W |
| PD40-12 | 12V | 0A | 3.5A | 1% | | | | | | | | | 40W |
| PD40-13 | 15V | 0A | 3.0A | 1% | | | | | | | | | 40W |
| PD40-14 | 24V | 0A | 2.0A | 1% | | | | | | | | | 40W |
| PD40-23 | +5V | 0.5A | 3.0A | 3% | +12V | 0.2A | 2A | 5% | | | | | 40W |
| PD40-24 | +5V | 0.5A | 3.0A | 3% | +15V | 0.2A | 2A | 5% | | | | | 40W |
| PD40-25 | +5V | 0.5A | 3.0A | 3% | +24V | 0.1A | 1A | 5% | | | | | 40W |
| PD40-30 | +5V | 0.5A | 3.0A | 3% | +12V | 0.2A | 2A | 5% | -5V | 0A | 0.8A | 5% | 40W |
| PD40-31 | +5V | 0.5A | 3.0A | 3% | +12V | 0.2A | 2A | 5% | -12V | 0A | 0.8A | 5% | 40W |
| PD40-32 | +5V | 0.5A | 3.0A | 3% | +15V | 0.2A | 2A | 5% | -15V | 0A | 0.8A | 5% | 40W |
| PD40-33 | +5V | 0.5A | 3.0A | 3% | +15V | 0.2A | 2A | 5% | -12V | 0A | 0.8A | 5% | 40W |
| PD40-39 | +5V | 0.5A | 3.0A | 3% | +24V | 0.1A | 1A | 5% | -12V | 0A | 0.8A | 5% | 40W |

NOTES
1. All multi-output units may be operated at no load without damage. At no load, output tolerance increases to 10%
2. Suffix codes for mechanical format and input range are as follows. PD40-XXYZ; “XX” is the model code from the above table, “Y” is the input range (L = 10–30VDC, M = 20–60VDC, H = 30–90VDC) and “Z” is the mechanical format (A = open PCB, B=L-bracket, C=enclosed), eg, PD40-31MC (20–60VDC input range, enclosed).
3. “L” series is suitable only for 75% of the above stated maximum output power.

## Technical Illustration

### PD40 ENCLOSED




NOTES
1. Dimensions shown in inch (mm)
2. Tolerance 0.02 (0.5) maximum
3. Input connector mates with Molex housing 09-50-3041 and Molex 2878 series crimp terminal
4. Output connector mates with Molex housing 09-50-3061 and Molex 2878 series crimp terminal
5. Weight: 300 grams approx (PCB format)
6. For the mechanical details of L-bracket and enclosed formats please consult sales office

## Pin Chart

| MODEL | | PIN 1 | PIN 2 | PIN 3 | PIN 4 | PIN 5 | PIN 6 |
|---|---|---|---|---|---|---|---|
| PD40-10 | PD40-12 | OUTPUT | OUTPUT | OUTPUT | RETURN | RETURN | RETURN |
| PD40-13 | PD40-14 | #1 | #1 | #1 | | | |
| PD40-23 | PD40-24 | OUTPUT | OUTPUT | OUTPUT | COMMON | COMMON | N/C |
| PD40-25 | | #2 | #1 | #1 | RETURN | RETURN | |
| PD40-30 | PD40-31 | OUTPUT | OUTPUT | OUTPUT | COMMON | COMMON | OUTPUT |
| PD40-32 | PD40-33 | #2 | #1 | #1 | RETURN | RETURN | #3 |
| PD40-39 | | | | | | | |

# PD Series

40-110 WATTS WIDE INPUT

## Selection Table

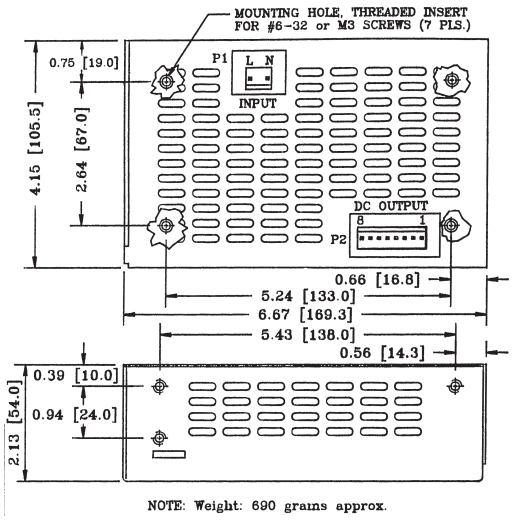
**PD65 SERIES (65W)**

| MODEL NUMBER | OUTPUT #1 | | | | OUTPUT #2 | | | | OUTPUT #3 | | | | OUTPUT #4 | | | | MAXIMUM OUTPUT POWER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | |
| PD65-10 | 5V | 0A | 10A | 1% | | | | | | | | | | | | | 50W |
| PD65-12 | 12V | 0A | 5.5A | 1% | | | | | | | | | | | | | 65W |
| PD65-13 | 15V | 0A | 4.5A | 1% | | | | | | | | | | | | | 65W |
| PD65-14 | 24V | 0A | 3.0A | 1% | | | | | | | | | | | | | 65W |
| PD65-23 | +5V | 1A | 6.0A | 3% | +12V | 0.5A | 3A | 5% | | | | | | | | | 65W |
| PD65-24 | +5V | 1A | 6.0A | 3% | +15V | 0.4A | 3A | 5% | | | | | | | | | 65W |
| PD65-25 | +5V | 1A | 6.0A | 3% | +24V | 0.3a | 2a | 5% | | | | | | | | | 65W |
| PD65-30 | +5V | 1A | 6.0A | 3% | +12V | 0.5A | 3A | 5% | -5V | 0.1A | 0.5A | 10% | | | | | 65W |
| PD65-31 | +5V | 1A | 6.0A | 3% | +12V | 0.5A | 3A | 5% | -12V | 0.1A | 0.5A | 10% | | | | | 65W |
| PD65-32 | +5V | 1A | 6.0A | 3% | +15V | 0.4A | 3A | 5% | -15V | 0.1A | 0.5A | 10% | | | | | 65W |
| PD65-33 | +5V | 1A | 6.0A | 3% | +15V | 0.4A | 3A | 5% | -12V | 0.1A | 0.5A | 10% | | | | | 65W |
| PD65-39 | +5V | 1A | 6.0A | 3% | +24V | 0.3A | 2A | 5% | -12V | 0.1A | 0.5A | 10% | | | | | 65W |
| PD65-40 | +5V | 1A | 6.0A | 3% | +12V | 0.5A | 3A | 5% | -12V | 0.1A | 0.5A | 10% | -5V | 0.1A | 0.5A | 10% | 65W |

NOTES
1. All multi-output units may be operated at no load without damage. At no load, output tolerance increases to 10%.
2. Suffix codes for mechanical format and input range are as follows: PD65-XXYZ; "XX" is the model code from the above table, "Y" is the input range (L = 10–30VDC, M = 20–60VDC, H = 30–90VDC) and "Z" is the mechanical format (A = open PCB, B = L-bracket, C = enclosed), eg, PD65-31MC (20–60VDC input range, enclosed).
3. The models for 10–30VDC input range are suitable only for 70% of the above stated maximum output power.

## Technical Illustration

**PD65 ENCLOSED**




NOTES
1. Dimensions shown in inch (mm)
2. Tolerance 0.02 (0.5) maximum
3. Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal
4. Output connector mates with Molex housing 09-50-3081 and Molex 2878 series crimp terminal
5. Weight: 380 grams approx (PCB format)
6. For the mechanical details of L-bracket and enclosed formats please consult sales office

## Pin chart

| MODEL | | PIN 1 | PIN 2 | PIN 3 | PIN 4 | PIN 5 | PIN 6 | PIN 7 | PIN 8 |
|---|---|---|---|---|---|---|---|---|---|
| PD65-10 | PD65-12 | OUTPUT | OUTPUT | OUTPUT | OUTPUT | RETURN | RETURN | RETURN | RETURN |
| PD65-13 | PD65-14 | #1 | #1 | #1 | #1 | | | | |
| PD65-23 | PD65-24 | OUTPUT | OUTPUT | COMMON | COMMON | OUTPUT | OUTPUT | N/C | N/C |
| PD65-25 | | #1 | #1 | RETURN | RETURN | #2 | #2 | | |
| PD65-30 | PD65-31 | OUTPUT | OUTPUT | COMMON | COMMON | OUTPUT | OUTPUT | OUTPUT | N/C |
| PD65-32 | PD65-33 | #1 | #1 | RETURN | RETURN | #2 | #2 | #3 | |
| PD65-39 | | OUTPUT | OUTPUT | OUTPUT | COMMON | COMMON | OUTPUT | OUTPUT | OUTPUT |
| PD65-40 | | #1 | #1 | RETURN | RETURN | #2 | #2 | #3 | #4 |

# PD Series

40-110 WATTS WIDE INPUT

## Selection Table

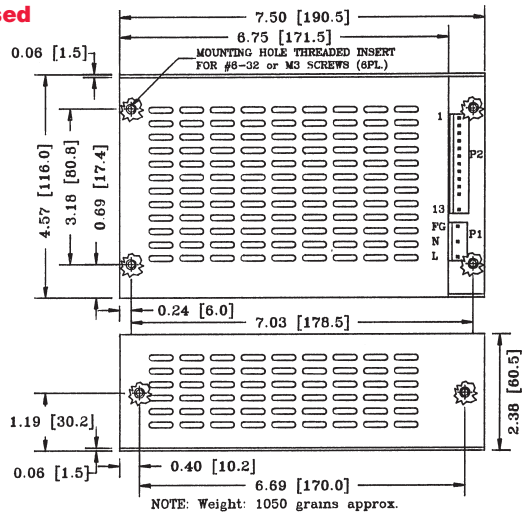
**PD110 SERIES (110W)**

| MODEL NUMBER | OUTPUT #1 | | | | OUTPUT #2 | | | | | OUTPUT #3 | | | | OUTPUT #4 | | | | MAXIMUM OUTPUT POWER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | IPEAK | TOL. | VNOM. | IMIN. | IMAX. | TOL. | VNOM. | IMIN. | IMAX. | TOL. | |
| PD110-10 | 5V | 0A | 22A | 3% | | | | | | | | | | | | | | 110W |
| PD110-12 | 12V | 0A | 9.0A | 2% | | | | | | | | | | | | | | 110W |
| PD110-13 | 15V | 0A | 7.5A | 2% | | | | | | | | | | | | | | 110W |
| PD110-14 | 24V | 0A | 4.5A | 2% | | | | | | | | | | | | | | 110W |
| PD110-16 | 30V | 0A | 3.6A | 2% | | | | | | | | | | | | | | 110W |
| PD110-23 | +5V | 0A | 10A | 3% | +12V | 0A | 5A | 9.0A | 3% | | | | | | | | | 110W |
| PD110-31 | +5V | 0A | 10A | 3% | +12V | 0A | 5A | 9.0A | 3% | -12V | 0A | 1A | 4% | | | | | 110W |
| PD110-32 | +5V | 0A | 10A | 3% | +15V | 0A | 4A | 7.5A | 3% | -15V | 0A | 1A | 4% | | | | | 110W |
| PD110-40 | +5V | 0A | 10A | 3% | +12V | 0A | 5A | 9.0A | 3% | -12V | 0A | 1A | 4% | -5V | 0A | 1A | 4% | 110W |
| PD110-41 | +5V | 0A | 10A | 3% | +15V | 0A | 4A | 7.5A | 3% | -15V | 0A | 1A | 4% | +24V | 0A | 1A | 4% | 110W |
| PD110-42 | +5V | 0A | 10A | 3% | +12V | 0A | 5A | 9.0A | 3% | -12V | 0A | 1A | 4% | +12V | 0A | 1A | 4% | 110W |
| PD110-45-1 | +5V | 0A | 10A | 3% | +12V | 0A | 5A | 9.0A | 3% | -12V | 0A | 1A | 4% | +24V | 0A | 1.5A | 10% | 110W |
| PD110-45-2 | +5V | 0A | 10A | 3% | +24V | 0A | 3A | 5.0A | 3% | -12V | 0A | 1A | 4% | +12V | 0A | 1A | 4% | 110W |
| PD110-46 | +5V | 0A | 10A | 3% | +15V | 0A | 4A | 7.5A | 3% | -15V | 0A | 1A | 4% | -5V | 0A | 1A | 4% | 110W |

NOTES
1. Peak output current with 10% maximum duty cycle for less than 60 seconds.
2. PD110 “M” & “H” series are suitable only for 110W maximum at 20 CFM forced air cooling or 80W maximum at convection cooling. PD110 “L” series are suitable only for 90W maximum at 20 CFM forced air cooling or 70W maximum at convection cooling.
3. Suffix codes for input range, mechanical format and connector are as follows: PD110-X1X2X3X4X5, “X1X2” is the model code from the above table, “X3” is the input range (L = 10–20VDC, M = 18–36VDC, H = 36–72VDC), “X4” is the mechanical format (A = open PCB, B = L-bracket, C = enclosed) and “X5” is the input and output connector code (Blank + Molex KK type, T = miniature terminal block), eg, PD110–31MCT (18–36VDC input range, enclosed format and miniature terminals blocks).

## Technical Illustration

**PD110 Enclosed**




NOTES
1. Dimensions shown in inch (mm)
2. Tolerance 0.02 (0.5) maximum
3. Molex KK type connectors:
   Input connector mates with Molex housing 09-50-3051 and Molex 2878 series crimp terminal
   Output connector mates with Molex housing 09-50-3131 and Molex 2878 series crimp terminal
4. Miniature terminal blocks:
   Input terminals allow wires up to 2mm2 (AWG #14)
   Output terminals allow wires up to 2mm2 (AWG #14)
5. Weight: 640 grams (PCB format)
6. For the mechanical details of L-bracket and enclosed formats please consult sales office

## Pin chart

| MINI TERMINAL MOLEX CONNECTOR MODEL | | 1 1,2,3 | 2 4,5 | 3 6,7 | 4 8,9 | 10 | 5 11 | 12 | 6 13 |
|---|---|---|---|---|---|---|---|---|---|
| PD110-10 | PD110-12 | OUTPUT | RETURN | RETURN | OUTPUT | N/C | N/C | KEY | N/C |
| PD110-13 | PD110-14 | #1 | | | #1 | | | | |
| PD110-16 | | | | | | | | | |
| PD110-23 | | OUTPUT | COMMON | COMMON | OUTPUT | N/C | N/C | N/C | KEY |
| | | #1 | RETURN | RETURN | #2 | | | | |
| PD110-31 | PD110-32 | OUTPUT | COMMON | COMMON | OUTPUT | N/C | OUTPUT | KEY | N/C |
| | | #1 | RETURN | RETURN | #2 | | #3 | | |
| PD110-40 | PD110-41 | OUTPUT | COMMON | COMMON | OUTPUT | N/C | OUTPUT | KEY | OUTPUT |
| PD110-42 | PD110-45-1 | #1 | RETURN | RETURN | #2 | | #3 | | |
| PD110-45-2 | PD110-46 | | | | | | | | |