

## Single Output Industrial Power Supplies

### Features

- ◆ Limited Lifetime Warranty
- ◆ -10 to +71°C Operation (-40°C start up)
- ◆ Universal Input (85 - 265VAC)
- ◆ Conformally coated pcbs
- ◆ Class 1 Div 2 option (/RYHD suffix)
- ◆ Wide range AC Input



### Key Market Segments & Applications



| Specifications  |     |  | HWS50  | HWS100       | HWS150        | HWS300  | HWS600        | HWS1000   | HWS1500   |  |
|---|-----|--|--|--------------|---------------|---|---------------|-----------|-----------|--|
| Input Voltage range (47-63Hz)   | -   |  | 85-265VAC or 120-370VDC  |              |               | 85-265VAC or 120-330VDC (No DC input for HWS1500) |               |           |           |  |
| Input Current (Typ) (1)   | A   |  | 0.7 / 0.35   | 1.3 / 0.65   | 1.9 / 0.95    | 4.1 / 2.1   | 8.1 / 3.9     | 13.5 / 7  | 19 / 10   |  |
| Inrush Current (1)  | A   |  | 14 / 2   |              |               | 20 / 4  |               |           |           |  |
| Power Factor  | -   |  | Meets EN61000-3-2  |              |               |   |               |           |           |  |
| Temperature Coefficient   | -   |  | <0.02%/°C  |              |               |   |               |           |           |  |
| Overcurrent Protection  | -   |  | >104%  |              |               |   |               |           |           |  |
| Overvoltage Protection  | V   |  | Yes (See table on page 2)  |              |               |   |               |           |           |  |
| Hold Up Time (Typ)  | ms  |  | 20   |              |               |   |               |           |           |  |
| Leakage Current (60Hz)  | mA  |  | <0.5mA   |              |               | <0.75mA   |               | <1.2mA    | ≤1.5mA    |  |
| Remote Sense  | -   |  | No   | Yes          |               |   |               |           |           |  |
| Indicator   | -   |  | Green LED = ON   |              |               |   |               |           |           |  |
| Remote On/Off   | -   |  | No   |              |               | Yes (Isolated from output)                        |               |           |           |  |
| Parallel operation  | -   |  | No   |              |               | Single wire connection (5 units max)              |               |           |           |  |
| DC Good   | -   |  | No   |              |               | Yes   |               |           |           |  |
| Remote Adjust (PV)  | -   |  | No   |              |               |   |               | Yes (3)   |           |  |
| Operating Temperature and Derating (operation to +74°C - contact factory) | °C  |  | HWS50-150: -10°C to +71°C, (-10 ~+50°C: 100%, +60°C: 60%, +71°C: 20%)<br>HWS300-1500: -10°C to +71°C, (-10 ~+50°C: 100%, derate linearly to 50% load from +50 to +71°C)<br>Guaranteed start up at -40°C (see specification sheets on website for details and derating) |              |               |   |               |           |           |  |
| Storage Temperature   | °C  |  | -40 to +85°C   |              |               |   |               |           |           |  |
| Humidity (non condensing)   | -   |  | Operating: 30 - 90%RH (10 -90% on HWS300-1500), Non operating 10 - 95%RH   |              |               |   |               |           |           |  |
| Cooling   | -   |  | Convection   |              |               | Internal fan                                      |               |           |           |  |
| Withstand Voltage (2)   | -   |  | Input to Ground 2kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min.   |              |               |   |               |           |           |  |
| Isolation Resistance  | -   |  | >100MΩ at 25°C & 70%RH, Output to Ground 500VDC, >10M Output to remote on/off 100VDC   |              |               |   |               |           |           |  |
| Vibration (non operating)   | -   |  | MIL-STD-810F 514.5 Category 4, 10 (HWS1500 Cat 4, figure 514.5C-1)   |              |               |   |               |           |           |  |
| Shock (in packaging)  | -   |  | MIL-STD-810F 516.5 Category I, VI (HWS1500 <196.1m/s <sup>2</sup> )  |              |               |   |               |           |           |  |
| Safety Agency Approvals   | -   |  | UL60950-1, CSA60950-1, EN60950-1, EN50178, CE Mark   |              |               |   |               |           |           |  |
| Line Dip  | -   |  | Complies with SEMI F47 (200VAC line only)  |              |               |   |               |           |           |  |
| Conducted & Radiated EMI  | -   |  | EN55011 / EN55022-B, FCC-B, VCCI-B (HWS1500 Class A)   |              |               |   |               |           |           |  |
| Immunity  | -   |  | IEC61000-4-2 (Level 2,3), -3, -4, -6, (Level 3), -5, -8 (Level 4), -11   |              |               |   |               |           |           |  |
| Weight (Typ)  | g   |  | 280  | 450          | 500           | 1000  | 1600          | 3200      | 3800      |  |
| Size (WxHxD)  | in  |  | 1.04x3.23x4.72   | 1.1x3.23x6.3 | 1.46x3.23x6.3 | 2.4x3.23x6.5                                      | 3.94x3.23x6.5 | 5x3.2x9.5 | 5x3.25x11 |  |
| Warranty  | yrs |  | Limited lifetime warranty (See TDK-Lambda's terms & conditions)  |              |               |   |               |           |           |  |

(1) 100/200VAC input

(2) HWS300-600 2.5kVAC Input to ground

(3) 1-6V program voltage input to adjust output 20-120% (typical) of nominal. See instruction manual for details & models with this feature.

(\*) Class 1 Div 2 option (/RYHD suffix)

| Output Ratings |         |              |             |                           |              |              |              |                  |               |                                |
|----------------|---------|--------------|-------------|---------------------------|--------------|--------------|--------------|------------------|---------------|--------------------------------|
| Model          | Voltage | Adjust Range | Max Curr(A) | Peak Curr(A) <sup>4</sup> | Max Power(W) | Load Reg(mV) | Line Reg(mV) | Ripple Noise(mV) | Overshoot (V) | Efficiency (typ)% <sup>1</sup> |
| HWS50-3/HD     | 3.3V    | 2.97 - 3.96  | 10          | -                         | 33           | 40           | 20           | 120              | 4.13-4.95     | 76/78                          |
| HWS100-3/HD    | 3.3V    | 2.97 - 3.96  | 20          | -                         | 66           | 40           | 20           | 120              | 4.13-4.95     | 78/81                          |
| HWS150-3/HD    | 3.3V    | 2.97 - 3.96  | 30          | -                         | 99           | 40           | 20           | 120              | 4.13-4.95     | 78/81                          |
| HWS300-3/HD    | 3.3V    | 2.64 - 3.96  | 60          | -                         | 198          | 30           | 20           | 120              | 4.13-4.95     | 74/77                          |
| HWS600-3/HD    | 3.3V    | 2.64 - 3.96  | 120         | -                         | 396          | 30           | 20           | 120              | 4.13-4.95     | 75/78                          |
| HWS1000-3/HD   | 3.3V    | 2.64 - 3.96  | 200         | -                         | 660          | 40           | 20           | 120              | 4.12-4.62     | 71/73                          |
| HWS1500-3/HD   | 3.3V    | 2.64 - 3.96  | 300         | -                         | 990          | 60           | 36           | 150              | 4.12-4.62     | 72/75                          |
| HWS50-5/HD     | 5V      | 4.0 - 6.0    | 10          | -                         | 50           | 40           | 20           | 120              | 6.25-7.25     | 82/84                          |
| HWS100-5/HD    | 5V      | 4.0 - 6.0    | 20          | -                         | 100          | 40           | 20           | 120              | 6.25-7.25     | 83/86                          |
| HWS150-5/HD    | 5V      | 4.0 - 6.0    | 30          | -                         | 150          | 40           | 20           | 120              | 6.25-7.25     | 83/86                          |
| HWS300-5/HD    | 5V      | 4.0 - 6.0    | 60          | -                         | 300          | 30           | 20           | 120              | 6.25-7.25     | 79/82                          |
| HWS600-5/HD    | 5V      | 4.0 - 6.0    | 120         | -                         | 600          | 30           | 20           | 120              | 6.25-7.25     | 80/83                          |
| HWS1000-5/HD   | 5V      | 4.0 - 6.0    | 200         | -                         | 1000         | 40           | 20           | 120              | 6.25-7        | 76/78                          |
| HWS1500-5/HD   | 5V      | 4.0 - 6.0    | 300         | -                         | 1500         | 60           | 36           | 150              | 6.25-7        | 77/81                          |
| HWS1000-6/HD   | 6V      | 4.8 - 7.2    | 167         | -                         | 1002         | 60           | 36           | 150              | 7.5-8.4       | 79/81                          |
| HWS1000-7/HD   | 7.5V    | 6.0 - 9.0    | 134         | 160                       | 1005         | 60           | 36           | 150              | 9.37-10.5     | 80/82                          |
| HWS50-12/HD    | 12V     | 9.6 - 14.4   | 4.3         | -                         | 51.6         | 96           | 48           | 150              | 15-17.4       | 81/83                          |
| HWS100-12/HD   | 12V     | 9.6 - 14.4   | 8.5         | -                         | 102          | 96           | 48           | 150              | 15-17.4       | 83/86                          |
| HWS150-12/HD   | 12V     | 9.6 - 14.4   | 13          | -                         | 156          | 96           | 48           | 150              | 15-17.4       | 83/86                          |
| HWS300-12/HD   | 12V     | 9.6 - 14.4   | 27          | -                         | 324          | 72           | 48           | 150              | 15-17.4       | 80/83                          |
| HWS600-12/HD   | 12V     | 9.6 - 14.4   | 53          | -                         | 636          | 72           | 48           | 150              | 15-17.4       | 80/83                          |
| HWS1000-12/HD  | 12V     | 9.6 - 14.4   | 88          | 100                       | 1056         | 100          | 48           | 150              | 15-17.4       | 82/85                          |
| HWS1500-12/HD  | 12V     | 9.6 - 14.4   | 125         | -                         | 1500         | 72           | 48           | 150              | 15-17.4       | 82/85                          |
| HWS50-15/HD    | 15V     | 12.0 - 18.0  | 3.5         | -                         | 52.5         | 120          | 60           | 150              | 18.8-21.8     | 81/83                          |
| HWS100-15/HD   | 15V     | 12.0 - 18.0  | 7           | -                         | 105          | 120          | 60           | 150              | 18.8-21.8     | 83/86                          |
| HWS150-15/HD   | 15V     | 12.0 - 18.0  | 10          | -                         | 150          | 120          | 60           | 150              | 18.8-21.8     | 83/86                          |
| HWS300-15/HD   | 15V     | 12.0 - 18.0  | 22          | -                         | 330          | 90           | 60           | 150              | 18.8-21.8     | 80/83                          |
| HWS600-15/HD   | 15V     | 12.0 - 18.0  | 43          | -                         | 645          | 90           | 60           | 150              | 18.8-21.8     | 81/84                          |
| HWS1000-15/HD  | 15V     | 12.0 - 18.0  | 70          | 80                        | 1500         | 120          | 60           | 150              | 18.7-21.8     | 83/85                          |
| HWS1500-15/HD  | 15V     | 12.0 - 18.0  | 100         | -                         | 1500         | 90           | 60           | 150              | 18.7-21.8     | 83/87                          |
| HWS50-24/HD    | 24V     | 19.2 - 28.8  | 2.2         | -                         | 52.8         | 192          | 96           | 150              | 30-34.8       | 82/84                          |
| HWS100-24/HD   | 24V     | 19.2 - 28.8  | 4.5         | -                         | 108          | 192          | 96           | 150              | 30-34.8       | 84/87                          |
| HWS150-24/HD   | 24V     | 19.2 - 28.8  | 6.5         | -                         | 156          | 192          | 96           | 150              | 30-34.8       | 85/88                          |
| HWS300-24/HD   | 24V     | 19.2 - 28.8  | 14          | 16.5                      | 336          | 144          | 96           | 150              | 30-34.8       | 82/85                          |
| HWS600-24/HD   | 24V     | 19.2 - 28.8  | 27          | 31                        | 648          | 144          | 96           | 150              | 30-34.8       | 82/85                          |
| HWS1000-24/HD  | 24V     | 19.2 - 28.8  | 46          | 58.5                      | 1104         | 150          | 96           | 150              | 30-34.8       | 85/87                          |
| HWS1500-24/HD  | 24V     | 19.2 - 28.8  | 65/70 (1)   | 105                       | 1560         | 144          | 96           | 200              | 30-34.8       | 84/88                          |
| HWS1000-36/HD  | 36V     | 28.8 - 43.2  | 30.7        | 39                        | 1104         | 150          | 144          | 200              | 45-49.7       | 85/88                          |
| HWS1500-36/HD  | 36V     | 28.8 - 43.2  | 42/46.5(2)  | 70                        | 1512         | 150          | 144          | 200              | 45-49.7       | 84/88                          |
| HWS50-48/HD    | 48V     | 38.4 - 52.8  | 1.1         | -                         | 52.8         | 384          | 192          | 200              | 55.2-64.8     | 83/85                          |
| HWS100-48/HD   | 48V     | 38.4 - 52.8  | 2.1         | -                         | 100.8        | 384          | 192          | 200              | 55.2-64.8     | 84/87                          |
| HWS150-48/HD   | 48V     | 38.4 - 52.8  | 3.3         | -                         | 158.4        | 384          | 192          | 200              | 55.2-64.8     | 85/88                          |
| HWS300-48/HD   | 48V     | 38.4 - 52.8  | 7           | -                         | 336          | 288          | 192          | 350              | 55.2-64.8     | 82/85                          |
| HWS600-48/HD   | 48V     | 38.4 - 52.8  | 13          | -                         | 624          | 288          | 192          | 350              | 55.2-64.8     | 83/86                          |
| HWS1000-48/HD  | 48V     | 38.4 - 52.8  | 28          | 29.2                      | 1104         | 300          | 192          | 200              | 55.2-60       | 86/88                          |
| HWS1500-48/HD  | 48V     | 38.4 - 52.8  | 32          | -                         | 1536         | 288          | 192          | 200              | 55.2-64.8     | 86/90                          |
| HWS1000-60/HD  | 60V     | 48.0 - 66.0  | 18.4        | 23.4                      | 1104         | 360          | 240          | 400              | 69-75         | 85/88                          |

(4) 200-265VAC Input, 10s maximum on time, 35% duty cycle

| Options |  |
|---------|--|
| Suffix  | Description  |
| Blank   | No Cover (HWS50-150 Only)<br>HWS300-1500 the cover is fitted as standard   |
| /HDA    | The cover option for HWS50-150 is special order only<br>HWS300-1500 the cover is fitted as standard  |
| /RYHD   | ISA 12.12.01 (UL1604) - Class 1 Div 2 with dry contact relay<br>DC Good signal (300W, 600W and 1500W 24V output models only, no remote on/off function.) |

| Other Industrial Products |                                 |
|---------------------------|---------------------------------|
| LZSA                      | 500W to 1500W Single output     |
| DPP, DLP, DSP             | 10W to 960W DIN Rail Mount      |
| PFE                       | 300 to 1000W AC-DC Power Models |

For Additional Information, please visit  
[us.tdk-lambda.com/lp/products/hws-series.htm](http://us.tdk-lambda.com/lp/products/hws-series.htm)





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.