

## 300-1500W Single Output Industrial Power Supplies

### Features

- ◆ Limited Lifetime Warranty
- ◆ UL508 approved
- ◆ SEMI F47 Compliant (high line AC)
- ◆ Universal Input (85 - 265VAC)
- ◆ High Efficiency
- ◆ Class 1 Div 2 option (/RY suffix)
- ◆ Wide Range AC Input



### Key Market Segments & Applications



| Specifications                   |     |                                                                                    |                                 |                                   |                                     |
|----------------------------------|-----|------------------------------------------------------------------------------------|---------------------------------|-----------------------------------|-------------------------------------|
| Model                            |     | HWS300                                                                             | HWS600                          | HWS1000                           | HWS1500                             |
| Input Voltage range (47-63Hz)    | -   | 85 - 265VAC or 120 - 330VDC (6)**                                                  |                                 |                                   |                                     |
| Input Current (Typ) (1)          | A   | 5V: 3.8/1.9;<br>12-48V: 4.2/2.1                                                    | 5V: 7.5/3.6;<br>12-48V: 8.1/3.9 | 3.3V: 9.6/5.0;<br>5-60V: 13.5/7.0 | 3.3V: 15.0/8.0;<br>5-60V: 19.5/10.0 |
| Inrush Current (1)               | A   | 20 / 40                                                                            |                                 |                                   |                                     |
| Power Factor                     | -   | Meets EN61000-3-2                                                                  |                                 |                                   |                                     |
| Temperature Coefficient          | -   | <0.02%/°C                                                                          |                                 |                                   |                                     |
| Overcurrent Protection           | -   | >105% (>101% of peak current for peak current capable models)                      |                                 |                                   |                                     |
| Overvoltage Protection           | V   | See table on page 2 (Recycle AC or remote on/off to reset)                         |                                 |                                   |                                     |
| Hold Up Time (Typ)               | ms  | 20                                                                                 |                                 |                                   |                                     |
| Leakage Curr. (at 240VAC, 60Hz)  | mA  | <0.75mA                                                                            |                                 |                                   |                                     |
| Remote Sense                     | -   | Yes                                                                                |                                 |                                   |                                     |
| Indicator                        | -   | Green LED = ON                                                                     |                                 |                                   |                                     |
| Remote on/off                    | -   | Yes (Isolated from output)                                                         |                                 |                                   |                                     |
| Parallel operation               | -   | Single wire connection (up to 5 units)                                             |                                 |                                   |                                     |
| DC Good                          | -   | Yes                                                                                |                                 |                                   |                                     |
| Remote Adjust (PV)               | -   | External voltage adjusts output, see options table                                 |                                 |                                   |                                     |
| Operating Temperature            | -   | -10°C to +70°C, derate linearly to 50% load from 50C to 70C (2, 3)                 |                                 |                                   |                                     |
| Storage Temperature              | °C  | -30 to +85°C                                                                       |                                 |                                   |                                     |
| Humidity (non condensing)        | -   | Operating: 10 - 90%RH, Non operating 10 - 95%RH                                    |                                 |                                   |                                     |
| Cooling                          | -   | Internal fan                                                                       |                                 |                                   |                                     |
| Withstand Voltage (4)            | -   | Input to Ground 2.5kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min. |                                 |                                   |                                     |
| Isolation Resistance             | -   | >100M at 25°C & 70%RH, Output to Ground 500VDC                                     |                                 |                                   |                                     |
| Vibration (non operating)        | -   | 10 - 55Hz (1 minute sweep), 19.6m/s <sup>2</sup> constant X, Y, Z 1 hour           |                                 |                                   |                                     |
| Shock                            | -   | < 196.1 m/s <sup>2</sup>                                                           |                                 |                                   |                                     |
| Safety Agency Certifications (5) | -   | UL60950-1, CSA60950-1, EN60950-1, EN50178, UL508, CE Mark                          |                                 |                                   |                                     |
| Line Dip                         | -   | Complies with SEMI F47 (200VAC line only)                                          |                                 |                                   |                                     |
| Conducted & Radiated EMI         | -   | EN55011 / EN55022, FCC VCCI (HWS300, 600 & 1000: Class B, HWS1500: Class A)        |                                 |                                   |                                     |
| Immunity                         | -   | IEC61000-4-2, -3, -4, -6 (Level 3), -5, -8 (Level 4), -11                          |                                 |                                   |                                     |
| Weight (Typ)                     | g   | 1,000                                                                              | 1,600                           | 3,200                             | 3.3-7.5V: 4000; 12V+: 3800          |
| Size (WxHxD)                     | in  | 2.4 x 3.23 x 6.5"                                                                  | 3.94 x 3.23 x 6.5"              | 5 x 3.25 x 9.45"                  | 5 x 3.25 x 11"                      |
| Warranty                         | yrs | Limited lifetime warranty (See TDK-Lambda's terms and conditions)                  |                                 |                                   |                                     |

(1) 100/200VAC

(2) HWS start up -20°C. (-40°C see options table)

(3) HWS1000/1500 with 85VAC input: See installation manual

(4) 2kVAC HWS1000/1500 Input to ground

HWS1000: -10 to +71°C. HWS1000-5, HWS1500-3, -5 derate linearly above 40°C

(5) UL60601-1, EN60601-1, see options.

UL508; HWS300/600 5V, 12V, 24V & 48V models

(6) Not on HWS1500/ME, /HD or /RY versions

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

(\*\*) Safety certified for AC input only

## Output Ratings

| Model      | Voltage<br>V | Adjust<br>Range<br>V(3) | Max<br>Curr.<br>A | Peak<br>Curr.<br>A(2) | Max.<br>Pwr.<br>W | Load<br>Reg<br>mV | Line<br>Reg<br>mV | Ripple<br>Noise<br>mV | Over-<br>voltage<br>V | Eff.<br>typ<br>% (1) |
|------------|--------------|-------------------------|-------------------|-----------------------|-------------------|-------------------|-------------------|-----------------------|-----------------------|----------------------|
| HWS300-3   | 3.3V         | 2.64 - 3.96             | 60                | -                     | 198               | 30                | 20                | 120                   | 4.13 - 4.95           | 74/77                |
| HWS600-3   | 3.3V         | 2.64 - 3.96             | 120               | -                     | 396               | 30                | 20                | 120                   | 4.13 - 4.95           | 75/78                |
| HWS1000-3  | 3.3V         | 2.64 - 3.96             | 200               | -                     | 660               | 40                | 20                | 120                   | 4.13 - 4.62           | 71/73                |
| HWS1500-3  | 3.3V         | 2.64 - 3.96             | 300               | -                     | 990               | 60                | 36                | 150                   | 4.12 - 4.62           | 72/75                |
| HWS300-5   | 5V           | 4 - 6                   | 60                | -                     | 300               | 30                | 20                | 120                   | 6.25 - 7.25           | 79/82                |
| HWS600-5   | 5V           | 4 - 6                   | 120               | -                     | 600               | 30                | 20                | 120                   | 6.25 - 7.25           | 80/83                |
| HWS1000-5  | 5V           | 4 - 6                   | 200               | -                     | 1000              | 40                | 20                | 120                   | 6.25 - 7.0            | 76/78                |
| HWS1500-5  | 5V           | 4 - 6                   | 300               | -                     | 1500              | 60                | 36                | 150                   | 6.25 - 7.0            | 77/81                |
| HWS1000-6  | 6V           | 4.8 - 7.2               | 167               | -                     | 1002              | 60                | 36                | 150                   | 7.5 - 8.4             | 79/81                |
| HWS1500-6  | 6V           | 4.8 - 7.2               | 250               | 300                   | 1500              | 60                | 36                | 150                   | 7.5 - 8.4             | 79/82                |
| HWS1000-7  | 7.5V         | 6 - 9V                  | 134               | 160                   | 1005              | 60                | 36                | 150                   | 9.38 - 10.5           | 80/82                |
| HWS1500-7  | 7.5V         | 6 - 9V                  | 200               | 240                   | 1500              | 60                | 40                | 150                   | 9.37 - 10.5           | 81/83                |
| HWS300-12  | 12V          | 9.6 - 14.4              | 27                | -                     | 324               | 96                | 48                | 120                   | 15 - 17.4             | 80/83                |
| HWS600-12  | 12V          | 9.6 - 14.4              | 53                | -                     | 648               | 96                | 48                | 120                   | 15 - 17.4             | 80/83                |
| HWS1000-12 | 12V          | 9.6 - 14.4              | 88                | 100                   | 1056              | 100               | 48                | 150                   | 15 - 17.4             | 83/85                |
| HWS1500-12 | 12V          | 9.6 - 14.4              | 125               | -                     | 1500              | 72                | 48                | 150                   | 15 - 17.4             | 82/85                |
| HWS300-15  | 15V          | 12 - 18                 | 22                | -                     | 330               | 120               | 60                | 150                   | 18.8 - 21.8           | 82/85                |
| HWS600-15  | 15V          | 12 - 18                 | 43                | -                     | 645               | 120               | 60                | 150                   | 18.8 - 21.8           | 82/85                |
| HWS1000-15 | 15V          | 12 - 18                 | 70                | 80                    | 1050              | 120               | 60                | 150                   | 18.8 - 21.8           | 83/85                |
| HWS1500-15 | 15V          | 12 - 18                 | 100               | -                     | 1500              | 90                | 60                | 150                   | 18.7 - 21.8           | 83/87                |
| HWS300-24  | 24V          | 19.2 - 28.8             | 14                | 16.5                  | 336               | 192               | 96                | 150                   | 30 - 34.8             | 82/85                |
| HWS600-24  | 24V          | 19.2 - 28.8             | 27                | 31                    | 648               | 192               | 96                | 150                   | 30 - 34.8             | 82/85                |
| HWS1000-24 | 24V          | 19.2 - 28.8             | 44                | 50                    | 1056              | 150               | 96                | 150                   | 30 - 34.8             | 85/87                |
| HWS1500-24 | 24V          | 19.2 - 28.8             | 65/70 (1)         | 105                   | 1560              | 144               | 96                | 200                   | 30 - 34.8             | 84/88                |
| HWS1000-36 | 36V          | 28.8 - 43.2             | 29.3              | 33.3                  | 1055              | 150               | 144               | 200                   | 45 - 49.7             | 85/88                |
| HWS1500-36 | 36V          | 28.8 - 43.2             | 42/46.5 (1)       | 70                    | 1512              | 150               | 144               | 200                   | 45 - 49.7             | 84/88                |
| HWS300-48  | 48V          | 38.4 - 52.8             | 7                 | -                     | 336               | 384               | 192               | 200                   | 55.2 - 64.8           | 82/85                |
| HWS600-48  | 48V          | 38.4 - 52.8             | 13                | -                     | 624               | 384               | 192               | 200                   | 55.2 - 64.8           | 82/85                |
| HWS1000-48 | 48V          | 38.4 - 52.8             | 22                | 25                    | 1056              | 300               | 192               | 200                   | 55.2 - 64.8           | 86/88                |
| HWS1500-48 | 48V          | 38.4 - 52.8             | 32                | -                     | 1536              | 288               | 192               | 200                   | 55.2 - 64.8           | 86/90                |
| HWS1000-60 | 60V          | 48 - 66                 | 17.6              | 20                    | 1056              | 360               | 240               | 400                   | 69 - 75               | 85/88                |
| HWS1500-60 | 60V          | 48 - 66                 | 25.6/28 (1)       | 42                    | 1536              | 360               | 240               | 400                   | 69 - 75               | 86/90                |

Notes

(1) 100/200VAC

(2) 200-265VAC Input, 10s maximum on time with 35% duty cycle

(3) Use program input (PV) to adjust from 20-120% of nominal (20-110% for 48V & 60V models)

## Options

| Suffix | Description                                                                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blank  | HWS300-1500 the cover is fitted as standard                                                                                                                                                           |
| /A     | Not Applicable                                                                                                                                                                                        |
| /PV    | HWS300-1500 the cover is fitted as standard<br>HWS300, 600 (Standard on HWS1000 & 1500):<br>1-6V program voltage input to adjust output 20-120% of nominal<br>(20-110% for 48V) (12V-48V models only) |
| /HD    | See HWS50-1500/HD Datasheet for details. -40 to +71(74)°C<br>operation, conformally coated PCBs                                                                                                       |
| /ME    | See HWS30-1500/ME Datasheet for details. UL60601-1,<br>EN60950-1 medical certification                                                                                                                |
| /RY    | ISA 12.12.01 (UL1604) - Class 1 Div 2 with dry contact relay DC<br>Good signal (300W, 600W and 1500W 24V output models only,<br>no UL508 certification, no remote on/off function.)                   |

## Other Industrial Products

|                |                             |
|----------------|-----------------------------|
| HWS            | 15W to 150W single output   |
| LZSA           | 500W to 1500W Single output |
| SWS            | 50W to 1000W, low cost      |
| DPP, DLP & DSP | 10W to 480W DIN Rail Mount  |

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

