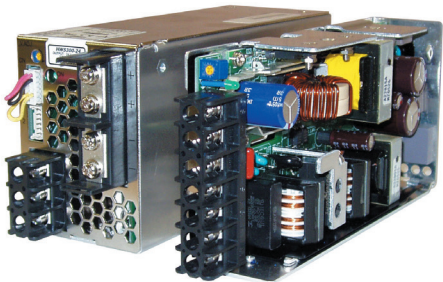


20-1500W Single Output Industrial Power Supplies

<https://product.tdk.com/en/power/hws-hd>  
[www.emea.lambda.tdk.com/hws-hd](http://www.emea.lambda.tdk.com/hws-hd)



The ultra reliable, conservatively rated HWS/HD series of 20W to 1500W AC-DC power supplies has a limited lifetime warranty<sup>(1)</sup>, unique to the industry. Based on the HWS-A and HWS series, the models offer pcb coating and start-up in -40°C ambient temperatures as standard for harsh environments. They accept a wide range 85 to 265Vac input with output voltages from 3.3V to 60V and are certified to IEC 62368-1. The HWS/HD also meet conducted and radiated emission standards without additional filtering or shielding.

| Features                                           | Benefits                          |
|----------------------------------------------------|-----------------------------------|
| • Pcb Coating and -40°C Ambient Start-up           | • Operation in Harsh Environments |
| • Limited Lifetime Warranty <sup>(1)</sup>         | • Low Cost of Ownership           |
| • Very Conservative Electrolytic Capacitor Ratings | • Long Service Life               |
| • Class B Conducted and Radiated EMI               | • Easier System EMC Compliance    |

|        |                                      |   |                                                                      |   |           |                                                        |
|--------|--------------------------------------|---|----------------------------------------------------------------------|---|-----------|--------------------------------------------------------|
| HWS    | 300                                  | - | 3                                                                    | / | HD        |                                                        |
| Series | Nominal power level and product size |   | Output voltage<br>3 (3.3V), 5, 6, 7 (7.5V)<br>12, 15, 24, 36, 48, 60 |   | blank     | No options                                             |
|        |                                      |   |                                                                      |   | /HDA      | The cover option for HWS50A-150A is special order only |
|        |                                      |   |                                                                      |   | Preferred |                                                        |

| Model Selector |                    |                      |                        |                                 |               |               |                   |                 |                             |
|----------------|--------------------|----------------------|------------------------|---------------------------------|---------------|---------------|-------------------|-----------------|-----------------------------|
| Model          | Output Voltage (V) | Adjustment Range (V) | Maximum Current (A)    | Peak Current (A) <sup>(2)</sup> | Load Reg (mV) | Line Reg (mV) | Ripple Noise (mV) | Overvoltage (V) | Efficiency (115/230Vac) (%) |
| HWS30A-3/HD    | 3.3                | 2.97 - 3.96          | 6                      | -                               | 40            | 20            | 120               | 4.13 - 4.95     | 75 / 77                     |
| HWS50A-3/HD    | 3.3                | 2.97 - 3.96          | 10                     | -                               | 40            | 20            | 120               | 4.13 - 4.95     | 82 / 84                     |
| HWS100A-3/HD   | 3.3                | 2.97 - 3.96          | 20                     | -                               | 40            | 20            | 120               | 4.13 - 4.95     | 82 / 84                     |
| HWS150A-3/HD   | 3.3                | 2.97 - 3.96          | 30                     | -                               | 40            | 20            | 120               | 4.13 - 4.95     | 78 / 81                     |
| HWS300-3/HD    | 3.3                | 2.64 - 3.96          | 60                     | -                               | 30            | 20            | 120               | 4.13 - 4.95     | 74 / 77                     |
| HWS600-3/HD    | 3.3                | 2.64 - 3.96          | 120                    | -                               | 30            | 20            | 120               | 4.13 - 4.95     | 75 / 78                     |
| HWS1000-3/HD   | 3.3                | 2.64 - 3.96          | 200                    | -                               | 40            | 20            | 120               | 4.12 - 4.62     | 71 / 73                     |
| HWS1500-3/HD   | 3.3                | 2.64 - 3.96          | 300                    | -                               | 60            | 36            | 150               | 4.12 - 4.62     | 72 / 75                     |
| HWS30A-5/HD    | 5                  | 4.0 - 6.0            | 6                      | -                               | 40            | 20            | 120               | 6.25 - 7.25     | 80 / 82                     |
| HWS50A-5/HD    | 5                  | 4.0 - 6.0            | 10                     | -                               | 40            | 20            | 120               | 6.25 - 7.25     | 82 / 84                     |
| HWS100A-5/HD   | 5                  | 4.0 - 6.0            | 20                     | -                               | 40            | 20            | 120               | 6.25 - 7.25     | 84 / 86                     |
| HWS150A-5/HD   | 5                  | 4.0 - 6.0            | 30                     | -                               | 40            | 20            | 120               | 6.25 - 7.25     | 85 / 87                     |
| HWS300-5/HD    | 5                  | 4.0 - 6.0            | 60                     | -                               | 30            | 20            | 120               | 6.25 - 7.25     | 79 / 82                     |
| HWS600-5/HD    | 5                  | 4.0 - 6.0            | 120                    | -                               | 30            | 20            | 120               | 6.25 - 7.25     | 80 / 83                     |
| HWS1000-5/HD   | 5                  | 4.0 - 6.0            | 200                    | -                               | 40            | 20            | 120               | 6.25 - 7.0      | 76 / 78                     |
| HWS1500-5/HD   | 5                  | 4.0 - 6.0            | 300                    | -                               | 60            | 36            | 150               | 6.25 - 7.0      | 77 / 81                     |
| HWS1000-6/HD   | 6                  | 4.8 - 7.2            | 167                    | -                               | 60            | 36            | 150               | 7.5 - 8.4       | 79 / 81                     |
| HWS1000-7/HD   | 7.5                | 6.0 - 9.0            | 134                    | 160                             | 60            | 36            | 150               | 9.37 - 10.5     | 80 / 82                     |
| HWS30A-12/HD   | 12                 | 9.6 - 14.4           | 2.5                    | -                               | 96            | 48            | 150               | 15.0 - 17.4     | 84 / 86                     |
| HWS50A-12/HD   | 12                 | 9.6 - 14.4           | 4.3                    | -                               | 96            | 48            | 150               | 15.0 - 17.4     | 83 / 85                     |
| HWS100A-12/HD  | 12                 | 9.6 - 14.4           | 8.5                    | -                               | 96            | 48            | 150               | 15.0 - 17.4     | 86 / 88                     |
| HWS150A-12/HD  | 12                 | 9.6 - 14.4           | 13                     | -                               | 96            | 48            | 150               | 15.0 - 17.4     | 85 / 88                     |
| HWS300-12/HD   | 12                 | 9.6 - 14.4           | 27                     | -                               | 72            | 48            | 150               | 15.0 - 17.4     | 80 / 83                     |
| HWS600-12/HD   | 12                 | 9.6 - 14.4           | 53                     | -                               | 72            | 48            | 150               | 15.0 - 17.4     | 80 / 83                     |
| HWS1000-12/HD  | 12                 | 9.6 - 14.4           | 88                     | 100                             | 100           | 48            | 150               | 15.0 - 17.4     | 82 / 85                     |
| HWS1500-12/HD  | 12                 | 9.6 - 14.4           | 125                    | -                               | 72            | 48            | 150               | 15.0 - 17.4     | 82 / 85                     |
| HWS30A-15/HD   | 15                 | 12.0 - 18.0          | 2                      | -                               | 120           | 60            | 150               | 18.8 - 21.8     | 85 / 87                     |
| HWS50A-15/HD   | 15                 | 12.0 - 18.0          | 3.5                    | -                               | 120           | 60            | 150               | 18.8 - 21.8     | 83 / 86                     |
| HWS100A-15/HD  | 15                 | 12.0 - 18.0          | 7                      | -                               | 120           | 60            | 150               | 18.8 - 21.8     | 86 / 88                     |
| HWS150A-15/HD  | 15                 | 12.0 - 18.0          | 10                     | -                               | 120           | 60            | 150               | 18.8 - 21.8     | 86 / 89                     |
| HWS300-15/HD   | 15                 | 12.0 - 18.0          | 22                     | -                               | 90            | 60            | 150               | 18.8 - 21.8     | 80 / 83                     |
| HWS600-15/HD   | 15                 | 12.0 - 18.0          | 43                     | -                               | 90            | 60            | 150               | 18.8 - 21.8     | 81 / 84                     |
| HWS1000-15/HD  | 15                 | 12.0 - 18.0          | 70                     | 80                              | 120           | 60            | 150               | 18.8 - 21.8     | 83 / 85                     |
| HWS1500-15/HD  | 15                 | 12.0 - 18.0          | 100                    | -                               | 90            | 60            | 150               | 18.8 - 21.8     | 83 / 87                     |
| HWS30A-24/HD   | 24                 | 19.2 - 28.8          | 1.3                    | -                               | 192           | 96            | 150               | 30.0 - 34.8     | 86 / 88                     |
| HWS50A-24/HD   | 24                 | 19.2 - 28.8          | 2.2                    | -                               | 192           | 96            | 150               | 30.0 - 34.8     | 84 / 87                     |
| HWS100A-24/HD  | 24                 | 19.2 - 28.8          | 4.5                    | -                               | 192           | 96            | 150               | 30.0 - 34.8     | 87 / 89                     |
| HWS150A-24/HD  | 24                 | 19.2 - 28.8          | 6.5                    | -                               | 192           | 96            | 150               | 30.0 - 34.8     | 88 / 90                     |
| HWS300-24/HD   | 24                 | 19.2 - 28.8          | 14                     | 16.5                            | 144           | 96            | 150               | 30.0 - 34.8     | 82 / 85                     |
| HWS600-24/HD   | 24                 | 19.2 - 28.8          | 27                     | 31                              | 144           | 96            | 150               | 30.0 - 34.8     | 82 / 85                     |
| HWS1000-24/HD  | 24                 | 19.2 - 28.8          | 46                     | 58.5                            | 150           | 96            | 150               | 30.0 - 34.8     | 85 / 87                     |
| HWS1500-24/HD  | 24                 | 19.2 - 28.8          | 65/70 <sup>(3)</sup>   | 105                             | 144           | 96            | 200               | 30.0 - 34.8     | 84 / 88                     |
| HWS1000-36/HD  | 36                 | 28.8 - 43.2          | 30.7                   | 39                              | 150           | 144           | 200               | 45.0 - 49.7     | 85 / 88                     |
| HWS1500-36/HD  | 36                 | 28.8 - 43.2          | 42/46.5 <sup>(3)</sup> | 70                              | 150           | 144           | 200               | 45.0 - 49.7     | 84 / 88                     |
| HWS30A-48/HD   | 48                 | 38.4 - 52.8          | 0.65                   | -                               | 384           | 192           | 200               | 55.2 - 64.8     | 86 / 87                     |
| HWS50A-48/HD   | 48                 | 38.4 - 52.8          | 1.1                    | -                               | 384           | 192           | 200               | 55.2 - 64.8     | 84 / 86                     |
| HWS100A-48/HD  | 48                 | 38.4 - 52.8          | 2.1                    | -                               | 384           | 192           | 200               | 55.2 - 64.8     | 88 / 90                     |
| HWS150A-48/HD  | 48                 | 38.4 - 52.8          | 3.3                    | -                               | 384           | 192           | 200               | 55.2 - 64.8     | 89 / 91                     |
| HWS300-48/HD   | 48                 | 38.4 - 52.8          | 7                      | -                               | 288           | 192           | 200               | 55.2 - 64.8     | 82 / 85                     |
| HWS600-48/HD   | 48                 | 38.4 - 52.8          | 13                     | -                               | 288           | 192           | 200               | 55.2 - 64.8     | 83 / 86                     |
| HWS1000-48/HD  | 48                 | 38.4 - 52.8          | 28                     | 29.2                            | 300           | 192           | 200               | 55.2 - 60.0     | 86 / 88                     |
| HWS1500-48/HD  | 48                 | 38.4 - 52.8          | 32                     | -                               | 288           | 192           | 200               | 55.2 - 64.8     | 86 / 90                     |
| HWS1000-60/HD  | 60                 | 48.0 - 66.0          | 18.4                   | 23.4                            | 360           | 240           | 400               | 69.0 - 75.0     | 85 / 88                     |

| Specifications                            |     |                                                        |                          |                                                      |                                     |
|-------------------------------------------|-----|--------------------------------------------------------|--------------------------|------------------------------------------------------|-------------------------------------|
| Model                                     |     | HWS30A/HD<br>HWS50A/HD                                 | HWS100A/HD<br>HWS150A/HD | HWS300/HD<br>HWS600/HD                               | HWS1000/HD<br>HWS1500/HD            |
| <b>Input</b>                              |     |                                                        |                          |                                                      |                                     |
| Input Voltage Range (Operating)           | Vac | 85 - 265                                               |                          |                                                      |                                     |
| Nominal Input Voltage Range               | Vac | 100 - 240 (Note: Safety certified for 90-264Vac)       |                          |                                                      |                                     |
| Input Frequency                           | Hz  | 47 - 63 (Note: Safety certified for 50/60Hz only)      |                          |                                                      |                                     |
| DC Input Voltage range                    | Vdc | 120 - 370 (Note: Safety certified for AC input only)   |                          | 120 - 330 (Note: Safety certified for AC input only) |                                     |
| Input Current (100/200Vac) <sup>(4)</sup> | A   | 0.65 / 0.4<br>0.7 / 0.35                               | 1.3 / 0.65<br>1.9 / 0.95 | 4.1 / 2.1<br>8.1 / 3.9                               | 5-60V: 13.5/7.0<br>5-60V: 19.5/10.0 |
| Inrush Current (100/200Vac)               | A   | 14 / 28 (Typical at cold start)                        |                          | 20 / 40 (Typical at cold start)                      |                                     |
| Leakage Current (240Vac, 60Hz)            | mA  | <0.5 (Typically 0.2 at 100Vac, 0.4 at 230Vac)          |                          | <0.75                                                | <1.2<br><1.5                        |
| Power Factor (100/200Vac)                 | -   | N/A<br>0.97 / 0.91                                     | 0.98 / 0.93              | 0.99 / 0.95                                          | 0.98 / 0.95<br>0.98 / 0.94          |
| Harmonic Compliance                       | -   | Meets IEC61000-3-2 Class A                             |                          |                                                      |                                     |
| Hold Up Time (typ)                        | ms  | 20                                                     |                          |                                                      |                                     |
| Efficiency                                | -   | See model selector table                               |                          |                                                      |                                     |
| Conducted & Radiated EMI                  | -   | EN55011 / EN55032-B, FCC-B, VCCI-B. (HWS1500: Class A) |                          |                                                      |                                     |
| Immunity                                  | -   | See immunity table                                     |                          |                                                      |                                     |
| Safety Certifications and Markings        | -   | IEC/EN/UL/CSA62368-1, 60950-1, CE Mark and UKCA Mark   |                          |                                                      |                                     |

| Immunity                        |              |                                                              |          |                                                        |
|---------------------------------|--------------|--------------------------------------------------------------|----------|--------------------------------------------------------|
| Test                            | Standard     | Test Level                                                   | Criteria | Notes<br>See IEC61000 immunity test reports on website |
| ESD                             | EN61000-4-2  | Air ± 8kV and contact ± 4kV                                  | A/B      | HWS30, 50, 100, 150, 300, 600; B                       |
| Radiated Susceptibility         | EN61000-4-3  | 80M -1GHz: 10V/m<br>1.4 - 2.0GHz: 3V/m<br>2.0 - 2.7GHz: 1V/m | A        | HWS30, 50, 100, 150; B                                 |
| Electrical Fast Transient Burst | EN61000-4-4  | ± 2kV                                                        | A/B      | HWS30, 50, 100, 150, 300, 600; B                       |
| Surge                           | EN61000-4-5  | Normal ± 2kV<br>Common ± 4kV                                 | B        | HWS30, 50, 100, 150, 300, 600; B                       |
| Conducted Susceptibility        | EN61000-4-6  | 10Vrms                                                       | A        |                                                        |
| Magnetic Fields                 | EN61000-4-8  | 30A/m                                                        | A        |                                                        |
| Voltage Dips                    | EN61000-4-11 | 30% 500ms                                                    | A        |                                                        |
|                                 |              | 60% 200ms                                                    | A        |                                                        |
|                                 |              | 100% 20ms                                                    | A        |                                                        |
|                                 |              | 100% 5000ms                                                  | B        |                                                        |
| SEMI F47 Line Dip               | SEMI F47     | -                                                            | -        | At input voltages > 200Vac                             |

| Specifications                      |        |                                                                                                                                                                                   |                          |                                           |                               |
|-------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------|-------------------------------|
| Model                               |        | HWS30A/HD<br>HWS50A/HD                                                                                                                                                            | HWS100A/HD<br>HWS150A/HD | HWS300/HD<br>HWS600/HD                    | HWS1000/HD<br>HWS1500/HD      |
| Output                              |        |                                                                                                                                                                                   |                          |                                           |                               |
| Switching Frequency                 | kHz    | 100                                                                                                                                                                               | 120                      | 190                                       | 3-5V: 45, 6-7V: 55, 12-60: 70 |
| Line Regulation                     | mV     | See Model Selector Table                                                                                                                                                          |                          |                                           |                               |
| Load Regulation                     | mV     | See Model Selector Table                                                                                                                                                          |                          |                                           |                               |
| External Load Capacitance (Maximum) | uF     | 3.3V, 5V: 10,000                                                                                                                                                                  | 3.3V, 5V: 10,000         | 3.3V, 5V; 10,000                          |                               |
|                                     |        | 12V, 15V: 5,000                                                                                                                                                                   | 12V, 15V: 10,000         | 12V, 15V; up to 5,000                     |                               |
|                                     |        | 24V: 2,000, 48V: 500                                                                                                                                                              | 24V: 5,000, 48V: 1,000   | 24V; up to 5,000, 48V; 1,000              |                               |
| Ripple & Noise                      | -      | See Model Selector Table                                                                                                                                                          |                          |                                           |                               |
| Temperature Coefficient             | %/°C   | 0.02                                                                                                                                                                              |                          |                                           |                               |
| Minimum Load                        | -      | No minimum load required                                                                                                                                                          |                          |                                           |                               |
| Overcurrent Protection              | %      | >105 (>101 of peak current for peak current capable models)                                                                                                                       |                          |                                           |                               |
| Overvoltage Protection              | -      | See model selector table. Latching (unit shutdown), cycle AC input to reset                                                                                                       |                          |                                           |                               |
| Remote Sense                        | -      | No                                                                                                                                                                                | Yes                      |                                           |                               |
| Remote On/Off                       | -      | No                                                                                                                                                                                |                          | Yes (Isolated from output)                |                               |
| Indicators                          | -      | Green LED indicates DC is OK                                                                                                                                                      |                          |                                           |                               |
| Parallel Operation                  | -      | No                                                                                                                                                                                |                          | Single wire connection (up to 5 units)    |                               |
| Environmental                       |        |                                                                                                                                                                                   |                          |                                           |                               |
| Operating Temperature               | °C     | -10 to +70, derate linearly to 50% load from 50 to 70 <sup>⑤</sup><br><a href="#">Guaranteed start up at -40°C (see specification sheets on website for details and derating)</a> |                          |                                           |                               |
| Storage Temperature                 | °C     | -40 to +85                                                                                                                                                                        |                          |                                           |                               |
| Humidity (non condensing)           | %RH    | Operating: 30 - 90, Non operating 10 - 95                                                                                                                                         |                          | Operating: 10 - 90, Non operating 10 - 95 |                               |
| Cooling                             | -      | Convection                                                                                                                                                                        |                          | Internal fan                              |                               |
| Altitude                            | m      | 4,000                                                                                                                                                                             |                          | 2,000                                     | 3,000                         |
|                                     |        |                                                                                                                                                                                   |                          | 2,000                                     | 2,000                         |
| Withstand Voltage (For 1 minute)    | Vac    | Input to ground 2,000                                                                                                                                                             |                          | Input to ground 2,500                     | Input to ground 2,000         |
|                                     |        | Input to output 3,000                                                                                                                                                             |                          | Input to output 3,000                     | Input to output 3,000         |
|                                     |        | Output to ground 500                                                                                                                                                              |                          | Output to ground 500                      | Output to ground 500          |
| Isolation Resistance                | MΩ     | >100 at 25°C, 70%RH & 500Vdc                                                                                                                                                      |                          |                                           |                               |
| Vibration (Non-operating)           | -      | MIL-STD-810F 514.5 Category 4, 10 (HWS1500 Cat 4, figure 514.5C-1)                                                                                                                |                          |                                           |                               |
| Shock (Non-operating)               | -      | MIL-STD-810F 516.5 Category I, VI (HWS1500 <196.1m/s <sup>2</sup> )                                                                                                               |                          |                                           |                               |
| Other                               |        |                                                                                                                                                                                   |                          |                                           |                               |
| Weight (Typ)                        | g      | 240                                                                                                                                                                               | 470                      | 1,000                                     | 3,200                         |
|                                     |        | 300                                                                                                                                                                               | 520                      | 1,600                                     | 4,000 (<12V 3,800)            |
| Size (WxHxD)                        | mm     | 26.5 x 82 x 95                                                                                                                                                                    | 28 x 82 x 160            | 61 x 82 x 165                             | 126.5 x 82 x 240              |
|                                     |        | 26.5 x 82 x 120                                                                                                                                                                   | 37 x 82 x 160            | 100 x 82 x 165                            | 126.5 x 82 x 280              |
| Size (WxHxD)                        | Inches | 1.04 x 3.23 x 3.74                                                                                                                                                                | 1.1 x 3.23 x 6.3         | 2.4 x 3.23 x 6.5                          | 5 x 3.25 x 9.45               |
|                                     |        | 1.04 x 3.23 x 4.72                                                                                                                                                                | 1.46 x 3.23 x 6.3        | 3.94 x 3.23 x 6.5                         | 5 x 3.25 x 11                 |
| Connectors                          | -      | Screw terminals                                                                                                                                                                   |                          |                                           |                               |
| Case Material                       | -      | Aluminum                                                                                                                                                                          |                          |                                           |                               |
| MTBF - Telcordia SR-332 issue 3*    | Hours  | 8,169,868                                                                                                                                                                         | 2,963,512                | 2,145,809                                 | 1,087,031                     |
|                                     |        | 3,726,622                                                                                                                                                                         | 2,676,081                | 1,998,996                                 | 1,152,309                     |
| Warranty                            | Years  | Limited lifetime <sup>(1)</sup> or 5 years                                                                                                                                        |                          |                                           |                               |

## Notes

See website for detailed specifications, test methods and installation manual

(1) The Americas and EMEA regions: limited lifetime warranty. Other regions: 5 years. See applicable regional terms of sale.

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

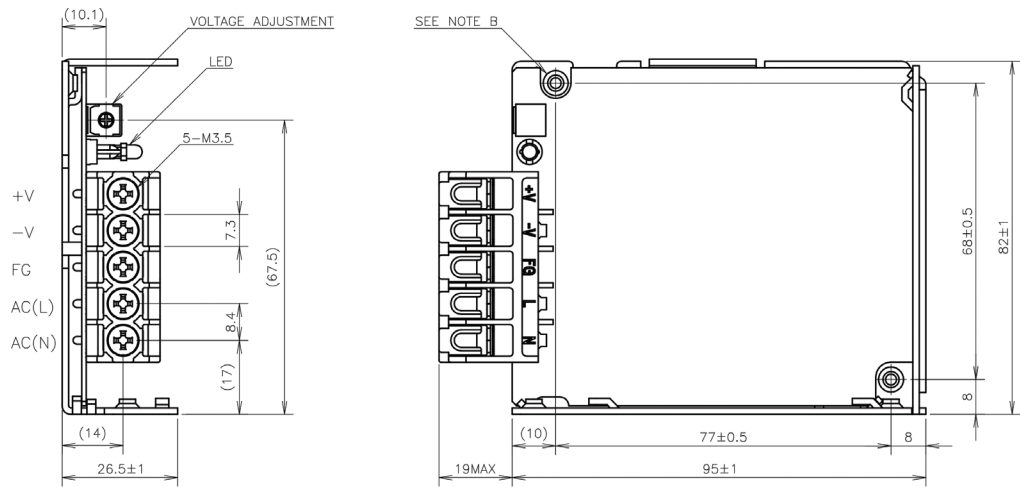
(3) Rating at 100 / 200Vac input

(4) See website for input current on 3.3V and 5V models

(5) Input and output voltage dependent. See installation manuals for derating curves

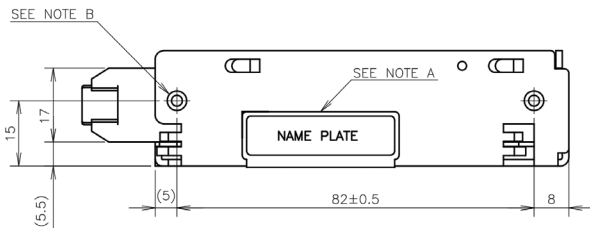
\* 24V output model, 25°C ambient, full load, 230Vac input

## Outline Drawing HWS30A/HD

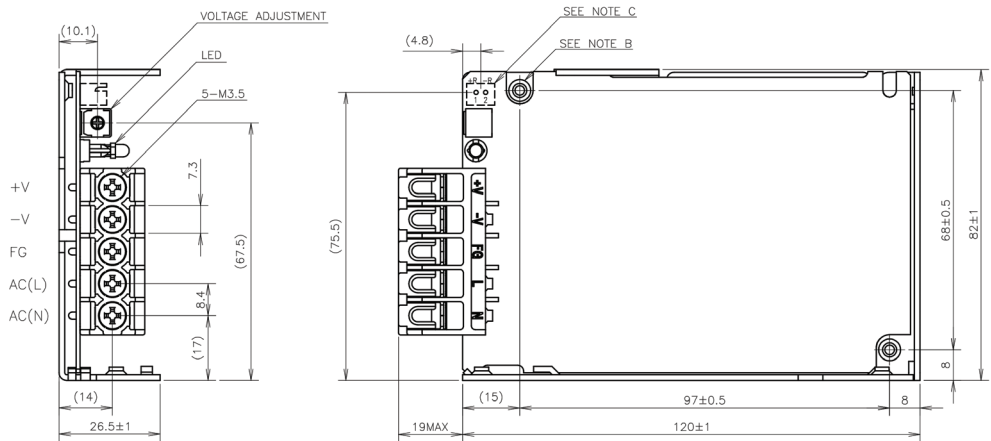


### NOTES

- A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.



## Outline Drawing HWS50A/HD

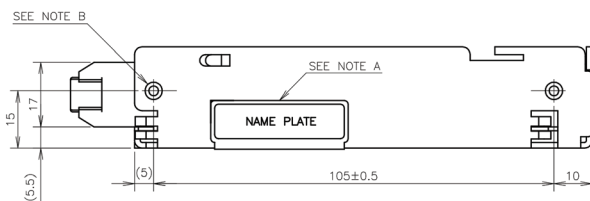


### NOTES

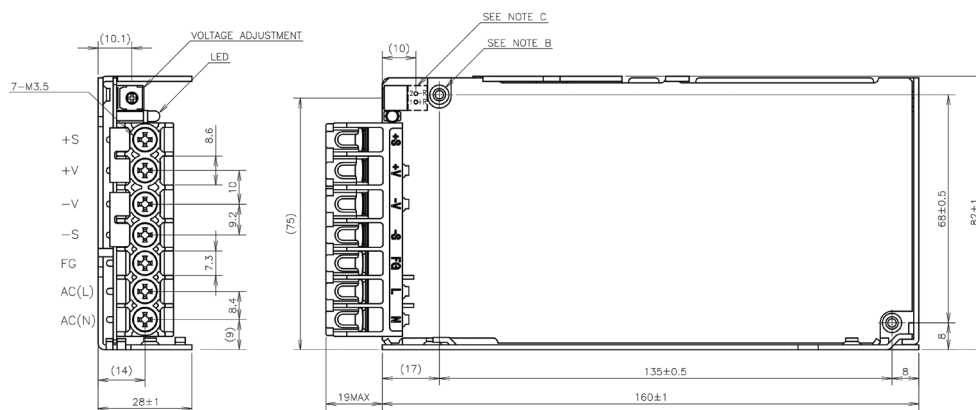
- A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.
- C : REMOTE ON/OFF CONTROL CONNECTOR --- OPTION B2B-XH-AM (JST)  
 MATCHING HOUSING : XHP-2 (JST)  
 MATCHING TERMINAL PIN : BXH-001T-P0.6 (JST) OR SXH-001T-P0.6 (JST)  
 HAND CRIMPING TOOL : YC-110R (JST) OR YRS-110 (JST)  
 MATCHING HOUSING AND TERMINAL PIN --- NOT INCLUDED WITH THE PRODUCT

### OPTIONAL MODELS

| MODEL      | REMOTE ON/OFF CONTROL |
|------------|-----------------------|
| HWS50A-*   | —                     |
| HWS50A-*/R | ○                     |



## Outline Drawing HWS100A/HD



### NOTES

- A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.
- C : REMOTE ON/OFF CONTROL CONNECTOR --- OPTION  
B2B-XH-AM (JST)  
MATCHING HOUSING : XHP-2 (JST)  
MATCHING TERMINAL PIN : BXH-001T-P0.6 (JST) OR SXH-001T-P0.6 (JST)  
HAND CRIMPING TOOL : YC-110R (JST) OR YRS-110 (JST)  
MATCHING HOUSING AND TERMINAL PIN --- NOT INCLUDED WITH THE PRODUCT

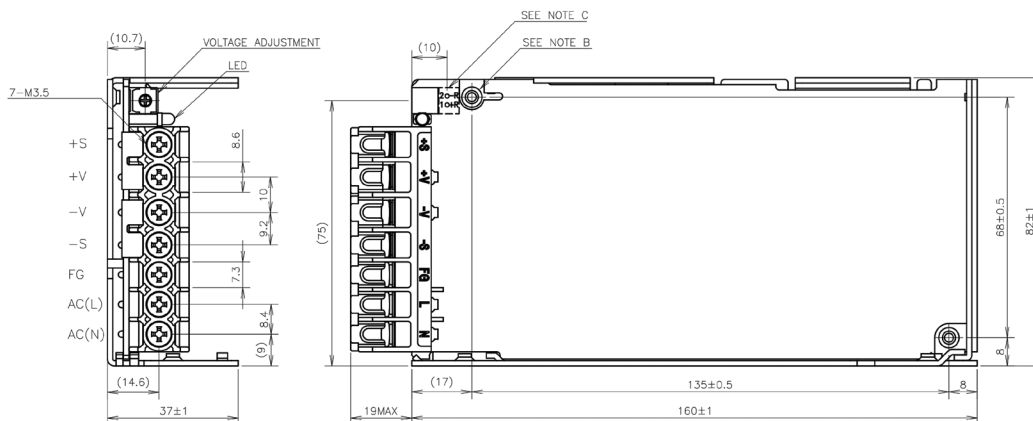
### ACCESSORIES

- \* SHORT PIECE (NET 2) FOR SHORTING PURPOSE  
(+S~+V, -S~-V) : MOUNTED AT TIME OF SHIPMENT.

### OPTIONAL MODELS

| MODEL       | REMOTE ON/OFF CONTROL |
|-------------|-----------------------|
| HWS100A-*   | —                     |
| HWS100A-*/R | ○                     |

## Outline Drawing HWS150A/HD



### NOTES

- A : MODEL NAME, OPTION CODE, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
- B : M3 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (4) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.
- C : REMOTE ON/OFF CONTROL CONNECTOR --- OPTION  
B2B-XH-AM (JST)  
MATCHING HOUSING : XHP-2 (JST)  
MATCHING TERMINAL PIN : BXH-001T-P0.6 (JST) OR SXH-001T-P0.6 (JST)  
HAND CRIMPING TOOL : YC-110R (JST) OR YRS-110 (JST)  
MATCHING HOUSING AND TERMINAL PIN --- NOT INCLUDED

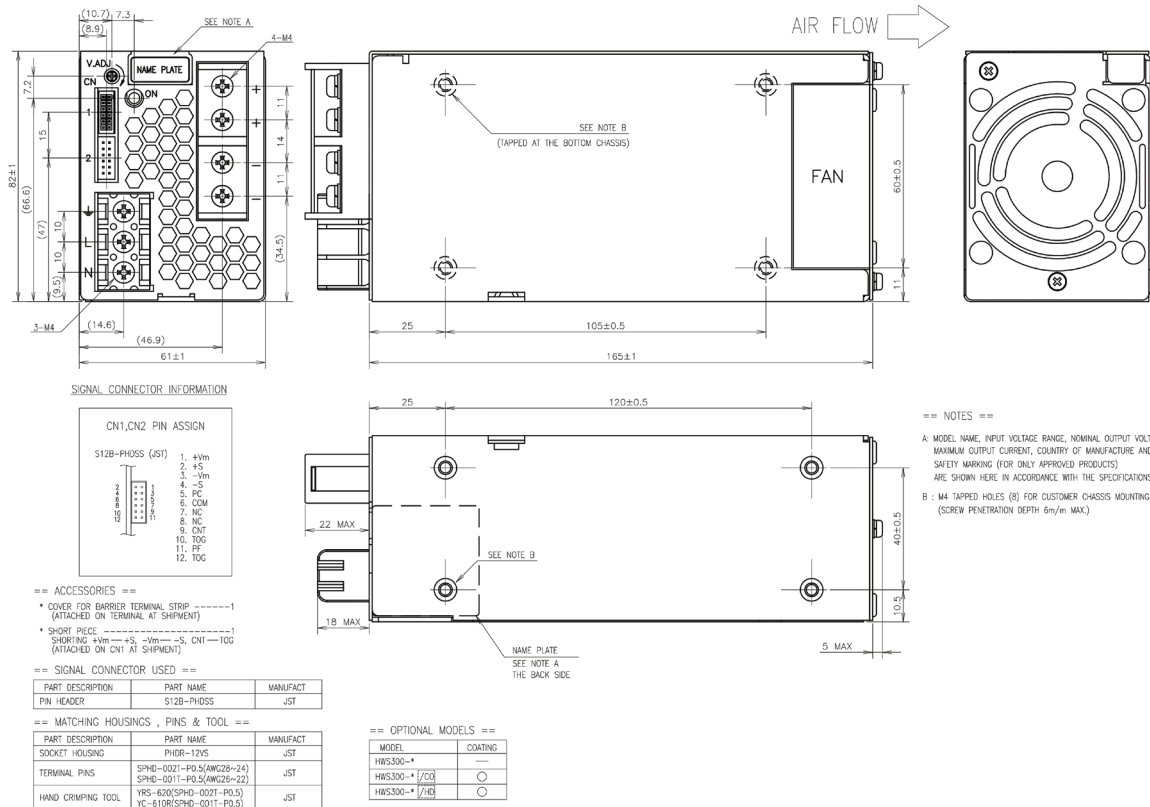
### ACCESSORIES

- \* SHORT PIECE (NET 2) FOR SHORTING PURPOSE  
(+S~+V, -S~-V) : MOUNTED AT TIME OF SHIPMENT.

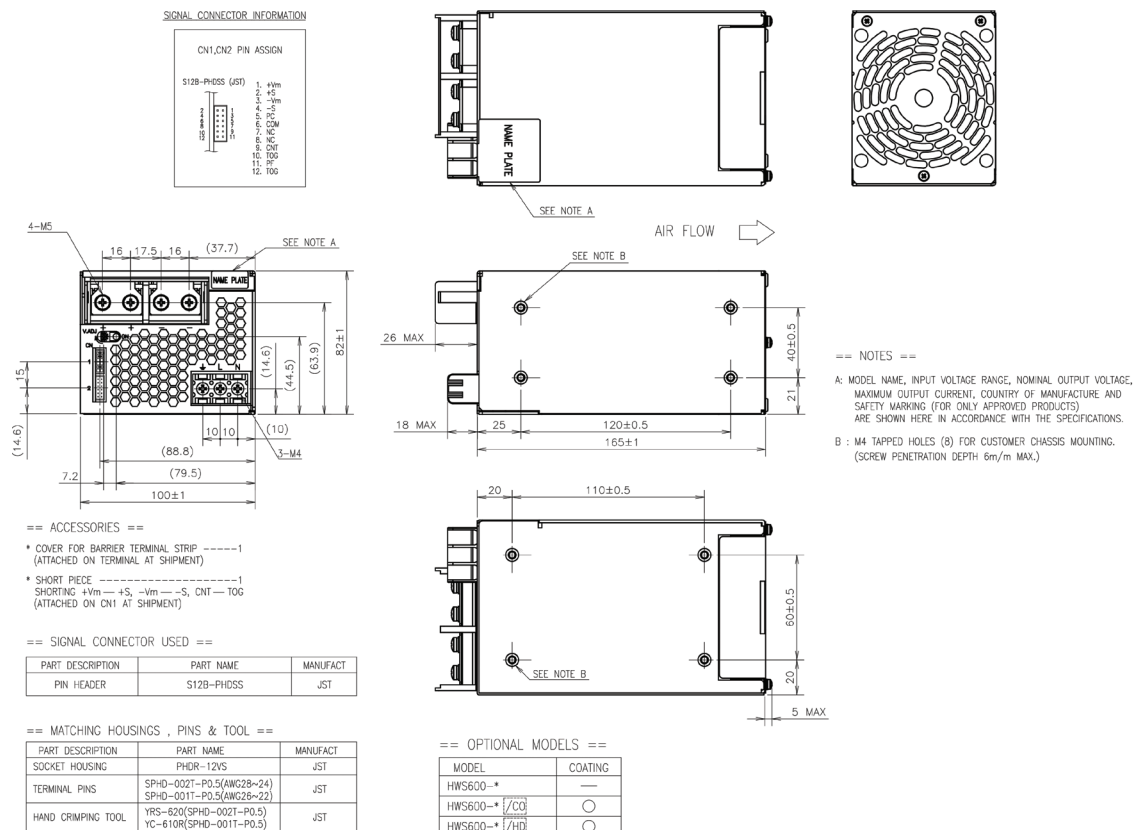
### OPTIONAL MODELS

| MODEL       | REMOTE ON/OFF CONTROL |
|-------------|-----------------------|
| HWS150A-*   | —                     |
| HWS150A-*/R | ○                     |

## Outline Drawing HWS300/HD

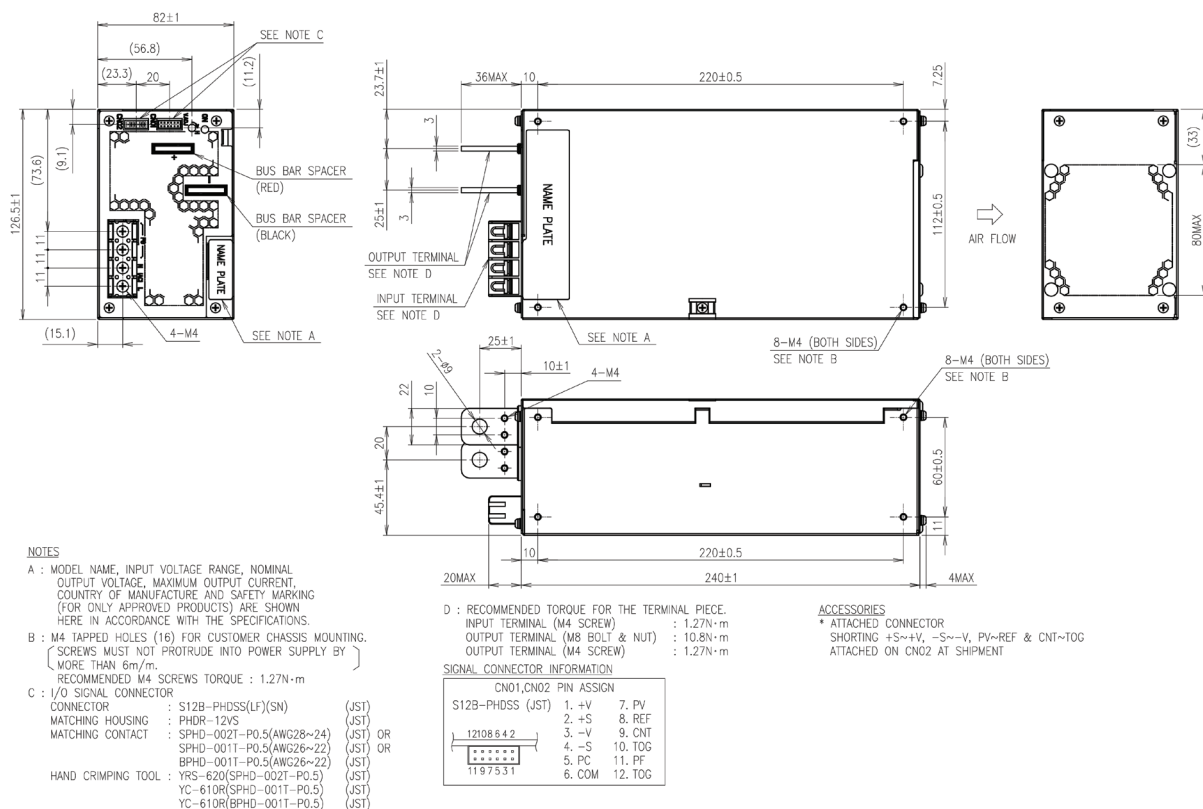


## Outline Drawing HWS600/HD

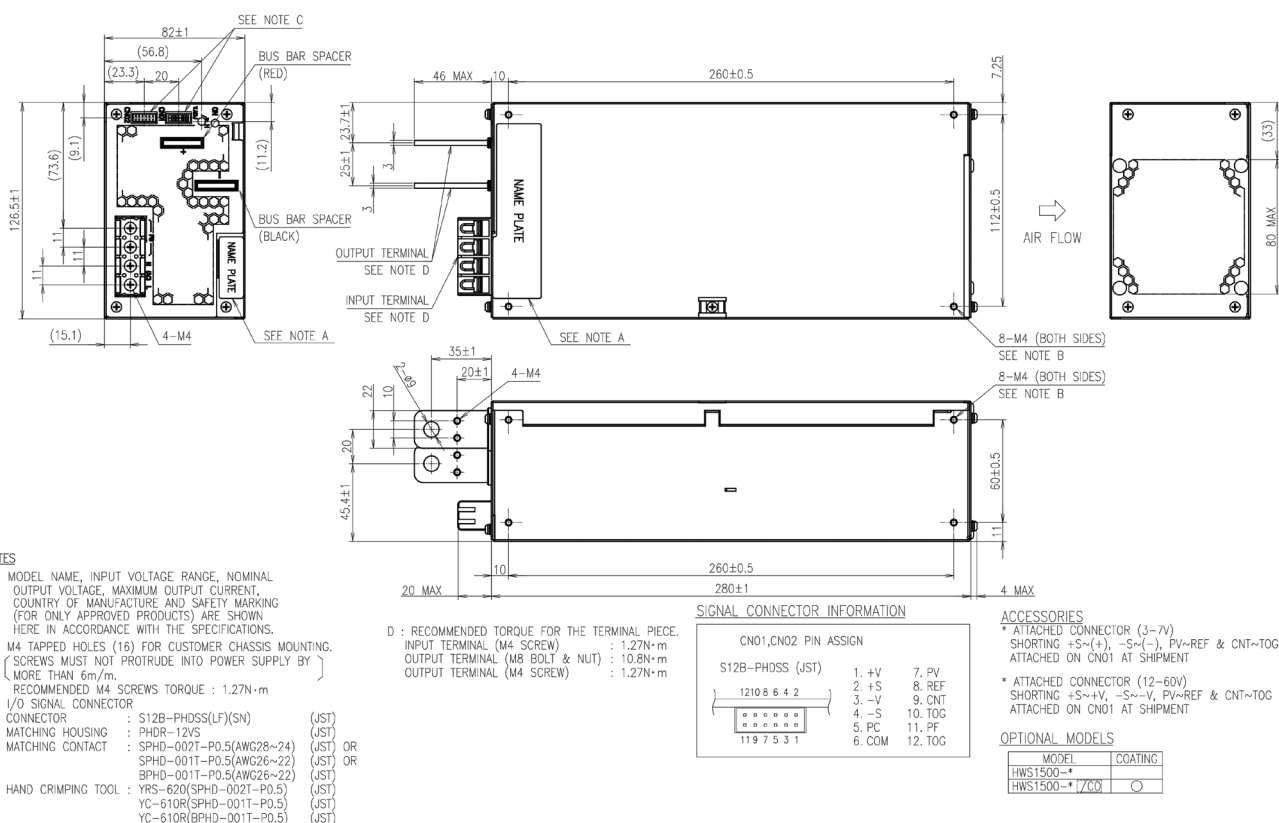




## Outline Drawing HWS1000/HD



## Outline Drawing HWS1500/HD







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