



Medical



Industrial



Test



Broadcast



Comms



Renewable

## 500W, Configurable, Class I or II AC-DC, power supply



| Features                            | Benefits                                                                   |
|-------------------------------------|----------------------------------------------------------------------------|
| • BF ready medical isolation (MOPP) | Eases design into systems (including BF)                                   |
| • Class I / II with level B EMC     | Eliminates need for additional EMC filters                                 |
| • Defibrillator proof               | Suitable for BFD applications<br><small>refer to technical support</small> |
| • Low airflow requirement           | Allows quieter system design                                               |
| • 5 year warranty                   | Low cost of ownership                                                      |

| Input                 |                                                                                                        |                 |                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------|
| Input Voltage         | 90-264Vac (100-240Vac nominal)<br>able to withstand input voltages of up to 300Vac for up to 5 seconds | Input Frequency | 47 - 63Hz                                                    |
| Input Harmonics       | EN61000-3-2 compliant                                                                                  | Power Factor    | 0.95 min at 110Vac input                                     |
| Input Fuse            | Dual fusing (single fuse optional)<br>Fast acting (not user replaceable)                               | Inrush Current  | <40A at 25°C and 264Vac (cold start)<br>(meets EN61000-3-3). |
| Earth Leakage Current | specified at 264Vac (63Hz). see 'How To Create A Product Description' for options                      |                 |                                                              |

| Quick Selector (Standard models). Additional variants available - see 'How To Create A Product Description' |         |                               |                       |            |                        |            |
|-------------------------------------------------------------------------------------------------------------|---------|-------------------------------|-----------------------|------------|------------------------|------------|
| Output                                                                                                      |         | Cover / Chassis /<br>Fan type | Class I               |            | Class II               |            |
| Volts                                                                                                       | Current |                               | Product Description   | Order code | Product Description    | Order code |
| 12V                                                                                                         | 41.6A   | Open Frame                    | XMS500-12-5H-N2NBRInA | XMS5001M   | XMS500D-12-5H-N2NBDInA | XMS50024   |
|                                                                                                             |         | U chassis                     | XMS500-12-5H-N2SBRInA | XMS5003X   | XMS500D-12-5H-N2SBDInA | XMS5004F   |
|                                                                                                             |         | Top fan                       | XMS500-12-5H-TFSBRInA | XMS5005Y   | XMS500D-12-5H-TFSBDInA | XMS5006G   |
| 24V                                                                                                         | 20.8A   | Open Frame                    | XMS500-24-5H-N2NBRInA | XMS50070   | XMS500D-24-5H-N2NBDInA | XMS5008H   |
|                                                                                                             |         | U chassis                     | XMS500-24-5H-N2SBRInA | XMS50091   | XMS500D-24-5H-N2SBDInA | XMS500BN   |
|                                                                                                             |         | Top fan                       | XMS500-24-5H-TFSBRInA | XMS500C6   | XMS500D-24-5H-TFSBDInA | XMS500DP   |
| 36V                                                                                                         | 13.8A   | Open Frame                    | XMS500-36-5H-N2NBRInA | XMS500FR   | XMS500D-36-5H-N2NBDInA | XMS500G8   |
|                                                                                                             |         | U chassis                     | XMS500-36-5H-N2SBRInA | XMS500HS   | XMS500D-36-5H-N2SBDInA | XMS500JT   |
|                                                                                                             |         | Top fan                       | XMS500-36-5H-TFSBRInA | XMS500KB   | XMS500D-36-5H-TFSBDInA | XMS500LV   |
| 48V                                                                                                         | 10.4A   | Open Frame                    | XMS500-48-5H-N2NBRInA | XMS500MC   | XMS500D-48-5H-N2NBDInA | XMS500NW   |
|                                                                                                             |         | U chassis                     | XMS500-48-5H-N2SBRInA | XMS500PX   | XMS500D-48-5H-N2SBDInA | XMS500RY   |
|                                                                                                             |         | Top fan                       | XMS500-48-5H-TFSBRInA | XMS500SG   | XMS500D-48-5H-TFSBDInA | XMS500T0   |

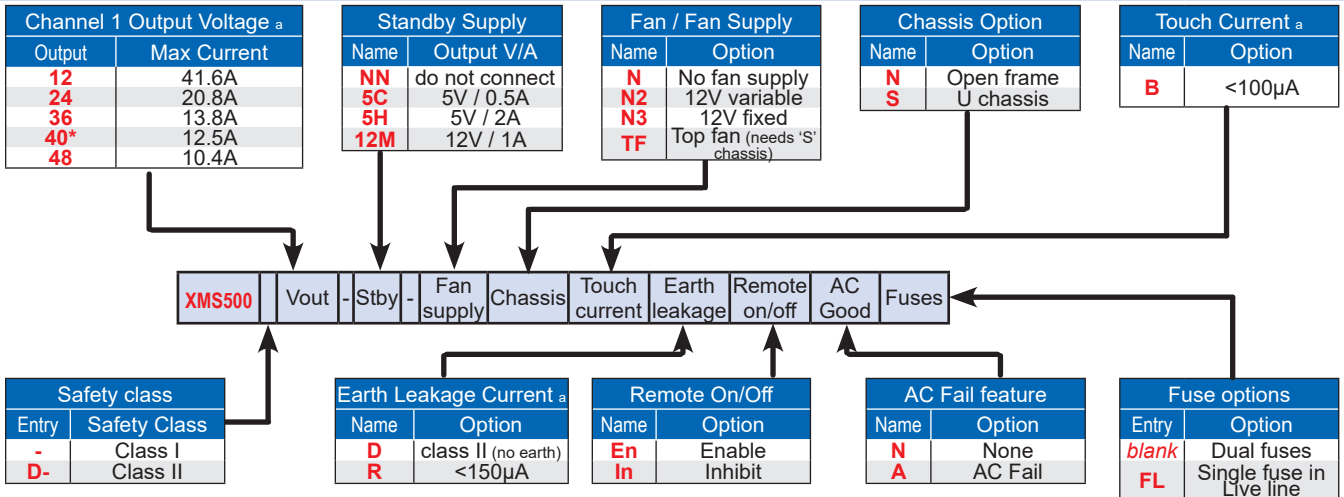
Standard models include:-

'5H' standby (5V / 2A), 'N2' fan supply (12V / 0.25A for 12V main output versions, 12V / 0.15A all others - variable supply voltage) [except on Top fan variants], 'B' touch current (<100µA),

'In' remote on/off (inhibit) and 'A' AC Fail. Class I standard models include 'R' earth leakage (<150µA).

| Isolation                        |            |                            |  |                 |                            |
|----------------------------------|------------|----------------------------|--|-----------------|----------------------------|
| Input to Output                  | Reinforced | 2 x MoPP, 5.7kVdc, 4kVac   |  | Output to Earth | Basic                      |
| Input to Earth<br>(class I only) | Basic      | 1 x MoPP, 1.5kVac, 2.3kVdc |  | Basic           | 1 x MoPP, 1.5kVac, 2.3kVdc |
|                                  |            |                            |  | (class I only)  |                            |

## How To Create A Product Description



a - additional variants available, consult sales office

\* Confirm availability of required product with sales office

## Output Specification

|                             |                |                                                                                                                                                            |
|-----------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Power                | 500W           | Continuous with specified airflow or top fan.                                                                                                              |
| Total Regulation            | better than 2% | Including Line regulation of 0.1% (for 90-264Vac input change), Load regulation of 1% (for 0-100% load change) and thermal regulation of 0.02%/°C (0-50°C) |
| Ripple & Noise              | 1%             | pk-pk, using EIAJ test method & 20MHz bandwidth                                                                                                            |
| Voltage Setting Accuracy    | ±1%            | at 50% load                                                                                                                                                |
| Turn on Time                | 1.0s max       | at 90 Vac & 100% rated output power                                                                                                                        |
| Efficiency                  | up to 92%      | At 230Vac, 100% load                                                                                                                                       |
| Hold up                     | 16ms           | minimum at 100% load<br>20ms holdup option available, consult sales office for details.                                                                    |
| Min Load                    | None           |                                                                                                                                                            |
| Transient Response          |                |                                                                                                                                                            |
| Deviation                   | <5%            | of set voltage for 25% to 100% load change                                                                                                                 |
| Recovery time               | <2ms           | for recovery to 2% of set voltage                                                                                                                          |
| Short circuit protection    | Yes            | Hiccup mode, auto recovery after removal of short circuit                                                                                                  |
| Over Temperature protection | Yes            | Latching, need to cycle ac to restart unit.                                                                                                                |
| Over Voltage Protection     | Yes            | Latching, need to cycle ac to restart unit.                                                                                                                |

## Signals

|                            |                                                                                                                                                                                                                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remote on/off<br>J2, pin 5 | Enable (-En option) - Connect to Standby + to enable channel 1. Open circuit or 0V to inhibit.<br>Inhibit (-In option) - Connect to Standby + to inhibit channel 1. Open circuit or 0V to enable.<br>Maximum current required = 2mA for 5V standby supply, 7mA for 12V standby supply |
| AC Fail                    | Provides ac fail functionality.<br>Logic high = ac fail, 0V = ac good.                                                                                                                                                                                                                |

## Additional Outputs

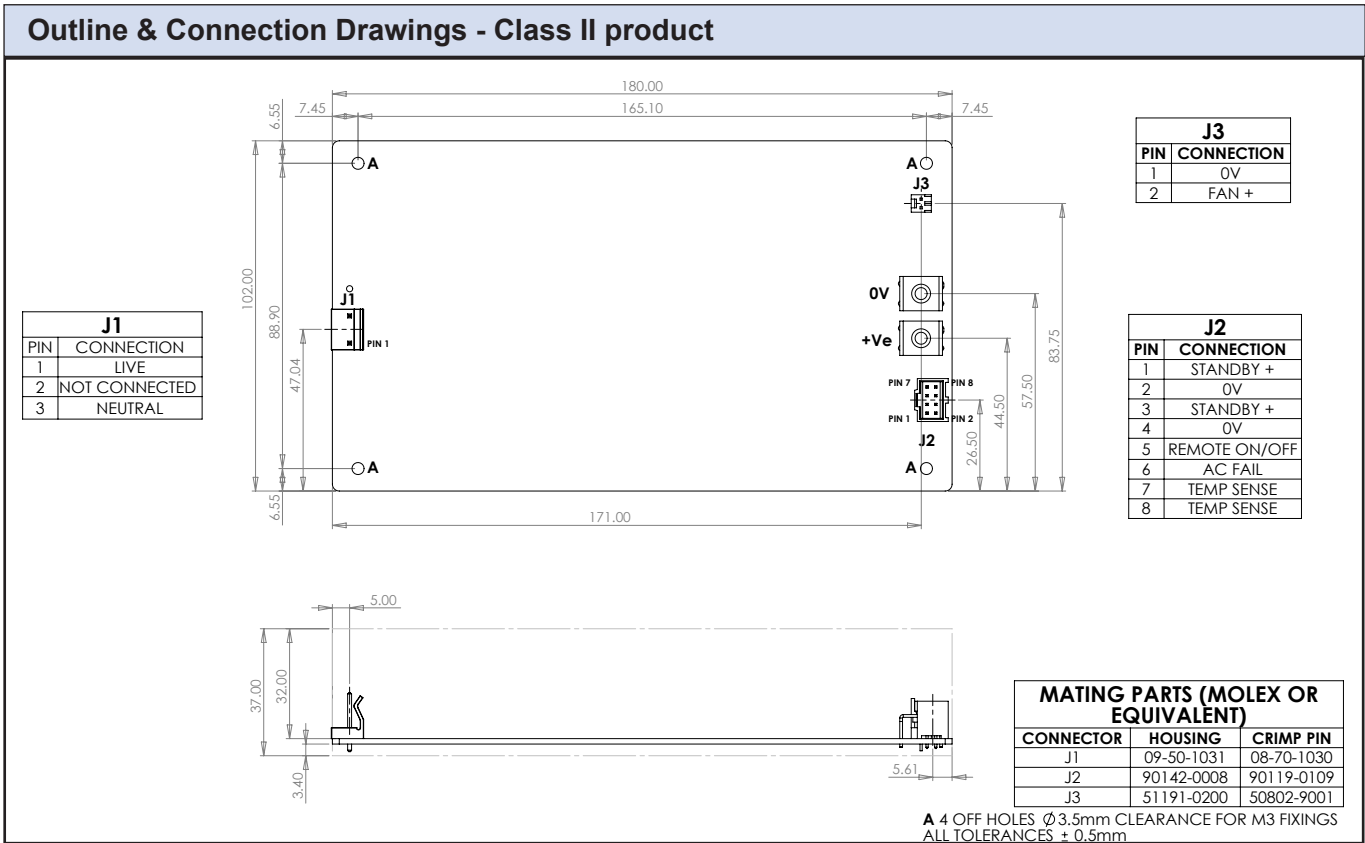
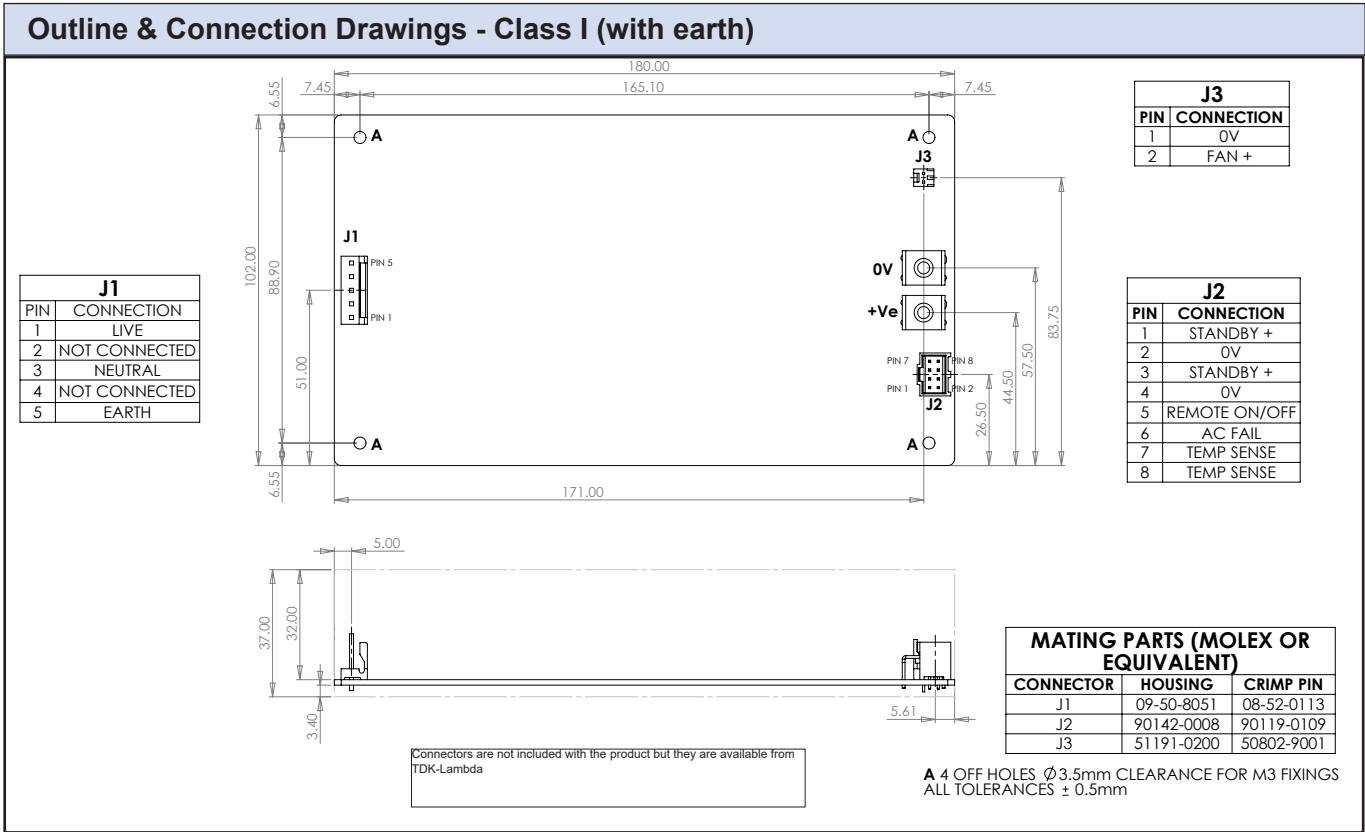
|                        |     |                                                                                                                                                       |
|------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fan supply options     | N   | None                                                                                                                                                  |
|                        | N2  | 12V / 0.25A for 12V main output versions, 12V / 0.15A all others. Output voltage varies with heat sink temperature. See application note for details. |
|                        | N3  | 12V / 0.25A for 12V main output versions, 12V / 0.15A all others. Constant voltage.                                                                   |
|                        | TF  | Top fan (fan supply not for customer use as used by factory fitted top fan)                                                                           |
| Standby Supply options | NN  | None                                                                                                                                                  |
|                        | 5C  | 5V / 0.5A                                                                                                                                             |
|                        | 5H  | 5V / 2A                                                                                                                                               |
|                        | 12M | 12V / 1A                                                                                                                                              |

| Environment      |                                                                                                                                                                                                                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature      | 0°C to 50°C operational<br>Full load with top fan (TF) fitted or 1m/s air blown (approximately 10 CFM).<br>See handbook for maximum component temperatures.<br>Convection cooled operation is possible by maintaining the specified component temperatures.<br>Storage -40°C to 85°C (70°C for Top Fan versions). |
| Derating         | 50°C to 70°C, derate output by 2.5% per °C                                                                                                                                                                                                                                                                        |
| Low Temp Startup | -20°C                                                                                                                                                                                                                                                                                                             |
| Humidity         | 5 - 95% RH non condensing                                                                                                                                                                                                                                                                                         |
| Shock            | ±3 x 30g shocks in each plane, total 18 shocks<br>30g shock = 11ms (+/-0.5msec), half sine<br>Conforms to EN60068-2-27, EN60068-2-47, IEC68-2-27, IEC68-2-47, JIS C0041-1987.<br>Conforms to MIL-STD-810G, Method 516.6, Pro IV, VI                                                                               |
| Vibration        | Single axis 10 - 200 Hz at 2g (sweep and endurance at resonance) in all 3 planes<br>Conforms to EN60068-2-6, IEC68-2-6<br>Conforms to MIL-STD-810G, Method 514.4, Pro I, Cat 1,9                                                                                                                                  |
| Altitude         | -200 to 5000 metres operational (3000m for 60601-1) (-200 to 5000m storage/transportation)                                                                                                                                                                                                                        |
| Pollution        | Degree 2, Material group 3                                                                                                                                                                                                                                                                                        |

| Emissions EN61000-6-3 |                  |                                                                                           |
|-----------------------|------------------|-------------------------------------------------------------------------------------------|
| Radiated Emissions    | EN55011, EN55032 | (as per CISPR.11/22) Class B, FCC47 part 15 subpart B<br>see application note for details |
| Conducted Emissions   | EN55011, EN55032 | (as per CISPR.11/22) Class B, FCC47 part 15 subpart B                                     |
| Conducted Harmonics   | EN61000-3-2      | Class A                                                                                   |
| Flicker               | EN61000-3-3      | Compliant - d <sub>max</sub> only                                                         |

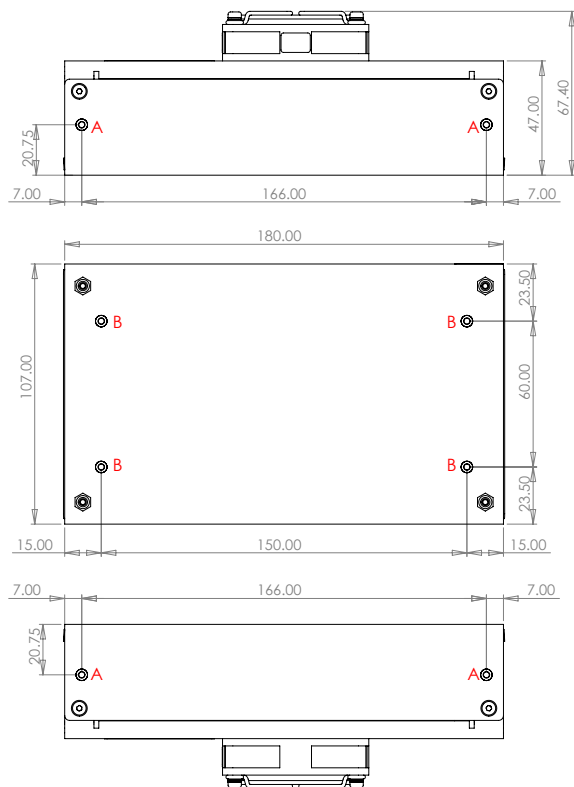
| Immunity EN61000-6-2:2005               |              |         |                                                                          | Criteria |
|-----------------------------------------|--------------|---------|--------------------------------------------------------------------------|----------|
| Electrostatic Discharge                 | EN61000-4-2  | Level 4 | Only when fitted in a chassis<br>Level 3 on I/O / signal pins            | A        |
| Electromagnetic Field                   | EN61000-4-3  | Level 3 |                                                                          | A        |
| Fast / Burst Transient                  | EN61000-4-4  | Level 4 |                                                                          | A        |
| Surge Immunity                          | EN61000-4-5  | Level 3 |                                                                          | A        |
| Conducted RF Immunity                   | EN61000-4-6  | Level 3 |                                                                          | A        |
| Power Frequency Magnetic Field          | EN61000-4-8  | Level 3 |                                                                          | A        |
| Voltage Dips, Variations, Interruptions | EN61000-4-11 | Class 3 | Criteria B for 5 sec interruption<br>Criteria B for 1 cycle interruption | A        |
| Ring Wave                               | EN61000-4-12 | Level 3 |                                                                          | B        |
| Voltage Fluctuations                    | EN61000-4-14 | Class 3 |                                                                          | A        |

| Approvals / Accreditations                                                                       |                                                                                                                               |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| IEC/EN 62368-1, UL62368-1 / CSA 22.2 No 62368-1                                                  | File E135494                                                                                                                  |
| IEC/EN 60950-1, UL60950-1 / CSA 22.2 No 60950-1                                                  | File E135494                                                                                                                  |
| IEC/EN 60601-1, UL/CSA 60601-1, ANSI/AAMI ES60601-1 CAN/CSA-C22.2 No 60601-1-08                  | File E349607                                                                                                                  |
| IEC/EN 61010-1 (designed to meet)                                                                |                                                                                                                               |
| IEC/EN/UL/CSA 60065 (designed to meet)                                                           |                                                                                                                               |
| CE Mark (EN62368-1)                                                                              | Low Voltage Directive (LVD)                                                                                                   |
| UKCA (EN62368-1)                                                                                 | Electrical Equipment (Safety) Regulations, electromagnetic compatibility (EMC) and Restriction of Hazardous Substances (RoHS) |
| CB certificate and Report available on request                                                   | <i>Please check with technical sales for status of approvals</i>                                                              |
| Designed and manufactured under the control of ISO9001 and ISO13485 (including risk management). |                                                                                                                               |

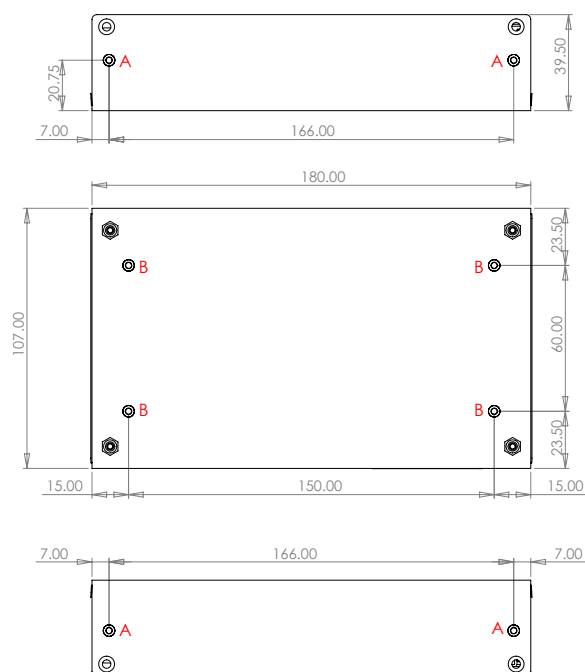


## Outline Drawings

### STANDARD CHASSIS + TOP FAN



### STANDARD CHASSIS



**A HOLES:** 4 OFF FIXING HOLES FOR M3, MAXIMUM PENETRATION 3mm.  
**B HOLES:** 4 OFF FIXING HOLES FOR M3 MAXIMUM PENETRATION 2.4mm  
 MAXIMUM TORQUE 0.5-0.6Nm  
 ALL TOLERANCES  $\pm 0.5\text{mm}$

All specifications at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.



**TDK-Lambda France SAS**

Tel: +33 1 60 12 71 65  
tlf.fr-powersolutions@tdk.com  
www.emea.lambda.tdk.com/fr



**Italy Sales Office**

Tel: +39 02 61 29 38 63  
tlf.it-powersolutions@tdk.com  
www.emea.lambda.tdk.com/it



**Netherlands**

tlf.nl-powersolutions@tdk.com  
www.emea.lambda.tdk.com/nl



**TDK-Lambda Germany GmbH**

Tel: +49 7841 666 0  
tlg.powersolutions@tdk.com  
www.emea.lambda.tdk.com/de



**Austria Sales Office**

Tel: +43 2256 655 84  
tlg.at-powersolutions@tdk.com  
www.emea.lambda.tdk.com/at



**Switzerland Sales Office**

Tel: +41 44 850 53 53  
tlg.ch-powersolutions@tdk.com  
www.emea.lambda.tdk.com/ch



**Nordic Sales Office**

Tel: +45 8853 8086  
tlg.dk-powersolutions@tdk.com  
www.emea.lambda.tdk.com/dk



**TDK-Lambda UK Ltd.**

Tel: +44 (0) 12 71 85 66 66  
tlu.powersolutions@tdk.com  
www.emea.lambda.tdk.com/uk



**TDK-Lambda Ltd.**

Tel: +9 723 902 4333  
tli.powersolutions@tdk.com  
www.emea.lambda.tdk.com/il-en



**TDK-Lambda Americas**

Tel: +1 800-LAMBDA-4 or 1-800-526-2324  
tla.powersolutions@tdk.com  
www.us.lambda.tdk.com



**TDK Electronics do Brasil Ltda**

Tel: +55 11 3289-9599  
sales.br@tdk-electronics.tdk.com  
www.tdk-electronics.tdk.com/en



**TDK-Lambda Corporation**

Tel: +81-3-6778-1113  
www.jp.lambda.tdk.com



**TDK-Lambda (China) Electronics Co. Ltd.**

Tel: +86 21 6485-0777  
tlc.powersolutions@tdk.com  
www.lambda.tdk.com.cn



**TDK-Lambda Singapore Pte Ltd.**

Tel: +65 6251 7211  
tls.marketing@tdk.com  
www.sg.lambda.tdk.com



**TDK India Private Limited, Power Supply Division**

Tel: +91 80 4039-0660  
mathew.philip@tdk.com  
www.sg.lambda.tdk.com

