

CERTIFICATE OF COMPLIANCE

Certificate Number 2018-09-07-E356265
Report Reference E356265-D1055-1/A0/C0-UL
Issue Date 2018-09-07
Issued to: DELTA ELECTRONICS INC
Applicant Company: 3 TUNGYUAN RD
CHUNGLI INDUSTRIAL ZONE, TAOYUAN COUNTY 32063
TAIWAN
Listed Company: Same as Applicant

This is to certify that representative samples of SWITCHING POWER SUPPLY
MDS-400AUS30 B

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/AAMI ES60601-1 (2005/(R)2012 + A1:2012,
C1:2009/(R)2012 + A2:2010/(R)2012) - Amendment 1 - Revision
Date 2012/08/21
CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 - Revision Date
2014/03

Additional Standards: N/A

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information.

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.



Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services, UL LLC
Joseph Hosey, General Manager, Director of Sales - Canada, UNDERWRITERS LABORATORIES OF CANADA INC.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative www.ul.com/contactus



CERTIFICATE OF COMPLIANCE

Certificate Number 20180822-E131881
Report Reference E131881-A2219-UL
Issue Date 2018-AUGUST-22

Issued to: DELTA ELECTRONICS INC
3 TUNGYUAN RD, CHUNGLI INDUSTRIAL ZONE
TAOYUAN COUNTY, 32063 TAIWAN


**This is to certify that
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL
BUSINESS EQUIPMENT; COMPONENT - POWER SUPPLIES
FOR USE WITH AUDIO/VIDEO, INFORMATION AND
COMMUNICATION TECHNOLOGY EQUIPMENT
SWITCHING POWER SUPPLY, MDS-400AUS30 B

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Addendum Page
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog
number, model number or other product designation as specified under "Marking" for the particular
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products
that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:
 may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is
required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual
recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance
capabilities and are intended for use as components of complete equipment submitted for investigation rather
than for direct separate installation in the field. The final acceptance of the component is dependent upon its
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at <http://ul.com/about/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number 20180822-E131881
Report Reference E131881-A2219-UL
Issue Date 2018-AUGUST-22

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Standard(s) for Safety: UL 60950-1 & CAN/CSA C22.2 No. 60950-1-07,
Information Technology Equipment - Safety - Part 1:
General Requirements



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/about/locations/>.



CERTIFICATE OF COMPLIANCE

Certificate Number 20180822-E131881
Report Reference E131881-A2219-UL
Issue Date 2018-AUGUST-22

Issued to: DELTA ELECTRONICS INC
3 TUNGYUAN RD, CHUNGLI INDUSTRIAL ZONE
TAOYUAN COUNTY, 32063 TAIWAN


This is to certify that
representative samples of

COMPONENT - POWER SUPPLIES, INFORMATION
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL
BUSINESS EQUIPMENT; COMPONENT - POWER SUPPLIES
FOR USE WITH AUDIO/VIDEO, INFORMATION AND
COMMUNICATION TECHNOLOGY EQUIPMENT
SWITCHING POWER SUPPLY, MDS-400AUS30 B

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Addendum Page
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog
number, model number or other product designation as specified under "Marking" for the particular
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products
that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:
 may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is
required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual
recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance
capabilities and are intended for use as components of complete equipment submitted for investigation rather
than for direct separate installation in the field. The final acceptance of the component is dependent upon its
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at <http://ul.com/about/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number 20180822-E131881
Report Reference E131881-A2219-UL
Issue Date 2018-AUGUST-22

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Standard(s) for Safety: UL 60950-1 & CAN/CSA C22.2 No. 60950-1-07,
Information Technology Equipment - Safety - Part 1:
General Requirements



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/about/locations/>



UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Complementary CCN:	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
Product:	SWITCHING POWER SUPPLY
Model:	MDS-400AUS30 B
Rating:	Input: 100-240V~/ 5.5-2.7A, 50-60Hz Output: 30Vdc, 13.33A
Applicant Name and Address:	DELTA ELECTRONICS INC 3 TUNGYUAN RD CHUNGLI INDUSTRIAL ZONE TAOYUAN COUNTY 32063 TAIWAN

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: David Chen

Reviewed by: Stalling Chen

- The equipment disconnect device is considered to be: Determined in end product
- The product was investigated to the following additional standards: The equipment is operated up to 5000 m (16404 feet) above sea level as declared by manufacturer. Clearances have been evaluated according to IEC 60664-1: table A.2 with a multiplication factor of 1.48 throughout this report., **UL 62368-1, 2nd Edition, 2014-12-01** (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements); **CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12** (Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements,
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Secondary outputs.
- The following were investigated as part of the protective earthing/bonding: Printed wiring board trace (See Enclosure ID 7-01)
- Unless otherwise specified, all tests are performed on the equipment with installed fuse source F1/F2, made by LITTLEFUSE, Type 216, rated F12.5AH, AC 250V
- The external DC fans of manufacturer: ADDA CORPORATION type: AD1212MB-A70GL, adjusted to airflow of 200LFM at supply voltage of DC 8V, was used during testing. (See Enclosure ID 7-02 for details)

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 250Vrms, 576Vpk; Primary-SELV: 250Vrms, 576Vpk
- The following secondary output circuits are SELV: all outputs.
- The following secondary output circuits are at hazardous energy levels: 30Vdc output
- The following output terminals were referenced to earth during performance testing: Secondary GND
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): T1 (Class B)
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- The equipment is suitable for direct connection to: AC mains supply

Additional Information

DC load for testing as follows:

- Condition A (Ambient 50 degree C): 30Vdc/13.4A (external fan cooled)
- Condition B (Ambient 50 degree C): 30Vdc/11.7A
- Condition C (Ambient 70 degree C): 30Vdc/6.7A (external fan cooled)
- Condition D (Ambient 70 degree C): 30Vdc/5.9A

Additional Standards