Ref. Certif. No.

JPTUV-171045

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Switching Power Supply
Name and address of the applicant	TDK-Lambda (China) Electronics Co., Ltd. No.95, Zhujiang Road, Xinwu District, Wuxi 214028 Jiangsu, P.R. China
Name and address of the manufacturer	TDK-Lambda (China) Electronics Co., Ltd. No.95, Zhujiang Road, Xinwu District, Wuxi 214028 Jiangsu, P.R. China
Name and address of the factory Note: *When more than one factory, please report on page 2*	See additional page(s) for the listing of 2 factories
Ratings and principal characteristics	Rated Input: 100-240Vac, 14A, 50-60Hz Protection Class: Class I
Trademark / Brand (if any)	TDK-Lambda
Customer's Testing Facility (CTF) Stage used	N/A
Model / Type Ref.	CUS1200My-zxxxxxx, CME1200Ay-zxxxxxx, CUS1200-zxxxxxx, CWS1200-zxxxxxx (y = blank; z = 24, 36, 48; xxxxxxx = /CO, /CO2, /G, /SF, /CQC, other alphanumeric character, symbol or blank)
Additional information (if necessary may also be reported on page 2)	For model difference, refer to the test report. Rated Output: refer to the test report.
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2014 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate	CN25I78V 001

This CB Test Certificate is issued by the National Certification Body

TÜVRheinland®

TÜV Rheinland Japan Ltd.
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021, Japan
Mail: info@jpn.tuv.com

Date: 2025-03-21

Signature: Mark Chen

10/061SMD 2024-12 rke-simplified

Factories :

1. TDK-Lambda Malaysia Sdn. Bhd.
PLO 33, Kawasan Perindustrian Senai 81400 Senai, Johor
Malaysia

2. TDK-Lambda (China) Electronics Co., Ltd.
No.95, Zhujiang Road, Xinwu District, Wuxi 214028 Jiangsu
P.R. China

TÜVRheinland®

Date: 2025-03-21 Signature: as on page 1

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number..... :	CN25I78V 001
Date of issue ..... :	2025-03-19
Total number of pages ..... :	106 (excluding report attachments, see page 3)
Name of Testing Laboratory preparing the Report ..... :	TÜV Rheinland (Shanghai) Co., Ltd.
Applicant's name ..... :	TDK-Lambda (China) Electronics Co., Ltd.
Address..... :	No. 95, Zhujiang Road, Xinwu District, Wuxi 214028 Jiangsu, P.R. China
Test specification:	
Standard ..... :	IEC 62368-1:2014
Test procedure..... :	CB Scheme
Non-standard test method..... :	N/A
TRF template used..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62368_1D
Test Report Form(s) Originator .. :	UL(US)
Master TRF ..... :	Dated 2022-04-14

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory.
The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description .....:	Switching Power Supply	
Trade Mark(s) .....:	TDK·Lambda	
Manufacturer .....:	Same as applicant	
Model/Type reference .....:	CUS1200My-zxxxxxx, CME1200Ay-zxxxxxx, CUS1200-zxxxxxx, CWS1200-zxxxxxx (y=blank; z = 24, 36, 48; xxxxxxx =/CO, /CO2, /G, /SF, /CQC, other alphanumeric character, symbol or blank)	
Ratings .....:	See the model list on page 9 for details.	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**	TÜV Rheinland (Shanghai) Co., Ltd.	
Testing location/ address..... :	No.177, 178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, China c/o TUV Rheinland Suzhou Co. Ltd. Pingqian (Taicang) Modern Industrial Park, No.525, Yuewang Lingang South Road, Shaxi Town, Taicang City, Jiangsu Province, China	
Tested by (name, function, signature)..... :	Eder Huang / Project Engineer	Eder Huang.
Approved by (name, function, signature)..... :	Johnson Ma / Technical Expert	
☐ **Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature)..... :		
☐ **Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature) ..... :		
Approved by (name, function, signature)..... :		
☐ **Testing procedure: CTF Stage 3 :**	N/A	
☐ **Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature) ..... :		
Approved by (name, function, signature)..... :		
Supervised by (name, function, signature)..... :		

List of Attachments (including a total number of pages in each attachment):

- ATTACHMENT – National Differences (54 pages)
- ATTACHMENT – Photo Documentation (9 pages)

Note: Total number of pages in each attachment is indicated in individual attachment.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
All applicable tests as described in test cases and appended tables were performed. Unless otherwise specified, throughout this report, all tests were performed on model CUS1200M-24, CUS1200M-36, CUS1200M-48 to represent other similar models. The test samples are pre-production sample without serial number. The load conditions used during testing: Maximum normal load according to sub-clause Annex B.2.5 for this equipment is the operation with the maximum specified DC-load with maximum power condition according to the manufacturer specified. The equipment has been evaluated for ambient temperature up to 70 °C. Specified ambient temperature for operation is according to manufacturer's specification. Mounting Direction: Mounting A was used during the test.	TUV Rheinland Suzhou Co. Ltd. Pingqian (Taicang) Modern Industrial Park, No.525, Yuewang Lingang South Road, Shaxi Town, Taicang City, Jiangsu Province, China

Summary of compliance with National Differences (List of countries addressed):

EU Group Differences, EU Special National Conditions, CA, JP, US, AU, NZ.

Explanation of used codes:

CA=Canada, JP=Japan, US=United States of America, AU=Australia, NZ=New Zealand.

☒ **The product fulfils the requirements of**

IEC 62368-1:2014 (Second Edition),
EN 62368-1:2014+A11:2017,
UL 62368-1:2014 and
CAN/CSA-C22.2 No. 62368-1-14.
AS/NZS 62368.1:2018

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

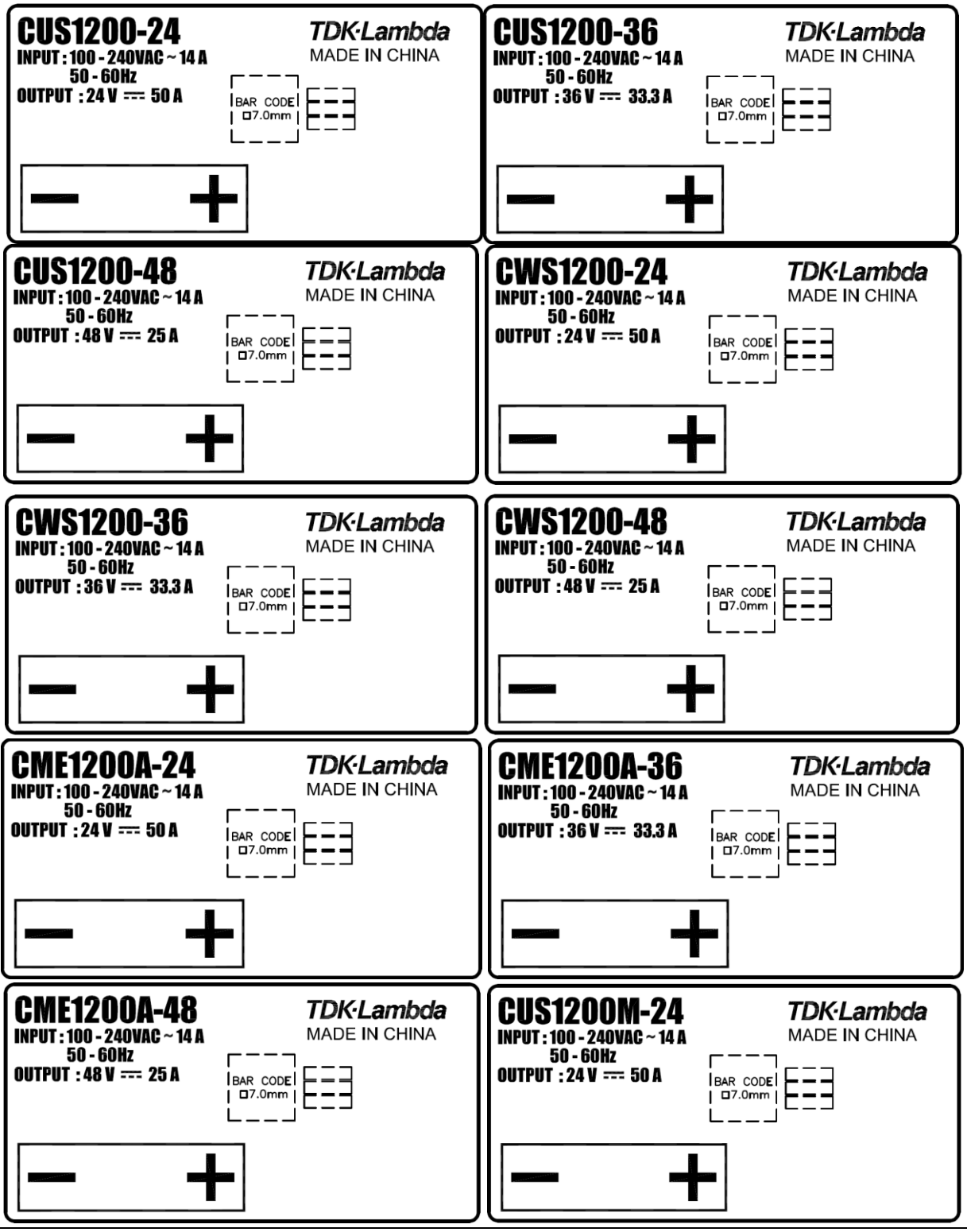
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

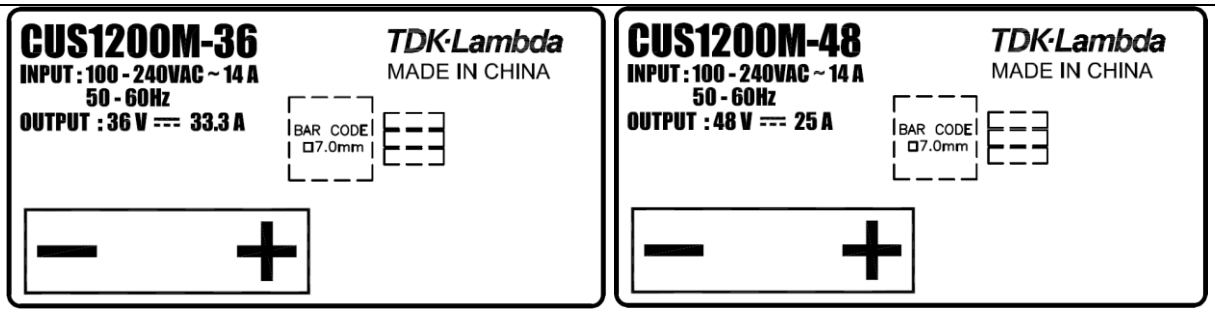
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

<Representative>





Note:

1. The marking plates for other models are of the same pattern except for model name.

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☐ Ordinary person ☒ Instructed person ☒ Skilled person ☐ Children likely to be present
Supply Connection..... :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☒ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☐ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☒ permanent connection ☒ mating connector ☒ other: _Terminal block_
Considered current rating of protective device as part of building or equipment installation ..... :	_32A (20A for US/CSA); Installation location: ☒ building; ☐ equipment
Equipment mobility ..... :	☐ movable ☐ hand-held ☐ transportable ☐ stationary ☒ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III ☐ Class II with functional earthing ☐ Not classifed
Access location ..... :	☒ restricted access area ☐ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating Ambient :	70 °C (operating temperature depending on equipment's load, mounting position, for details refer to page 9-11)
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☒ TN ☐ TT ☒ IT - __230__ V L-L; ☐ dc mains ☐ N/A
Altitude during operation (m) ..... :	☐ 2000 m or less ☒ _5000__ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	Approx. 0.98 kg for all models

Possible test case verdicts:	
- test case does not apply to the test object .....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)
Testing .....:	
Date of receipt of test item.....:	2025-02-06
Date (s) of performance of tests.....:	2025-02-06 to 2025-02-28

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☒ **Yes** ☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....:	1. TDK-Lambda (China) Electronics Co., Ltd. No. 95, Zhujiang Road, Xinwu District, Wuxi 214028 Jiangsu, P.R. China 2. TDK-Lambda Malaysia Sdn. Bhd PLO33, Kawasan Perindustrian Senai, 81400 Senai Johor Malaysia

General product information and other remarks:

Product Description:

The EUT is a component type switching mode power supply, which intended for the earthed construction IT equipment in the scope of this standard.

For earthed construction (Class I), the PSU need to be reliably earthed and professionally installed and fixed with metal screws.

Model CME1200Ay-zxxxxxxx & CUS1200-zxxxxxxx & CWS1200-zxxxxxxx are identical to model CUS1200My-zxxxxxxx except for model name.

Models with different output are identical, except for the turns of transformer and the different output ratings. The appearance of cooling fins for 48V is different to 24V or 36V.

See Model List below for details.

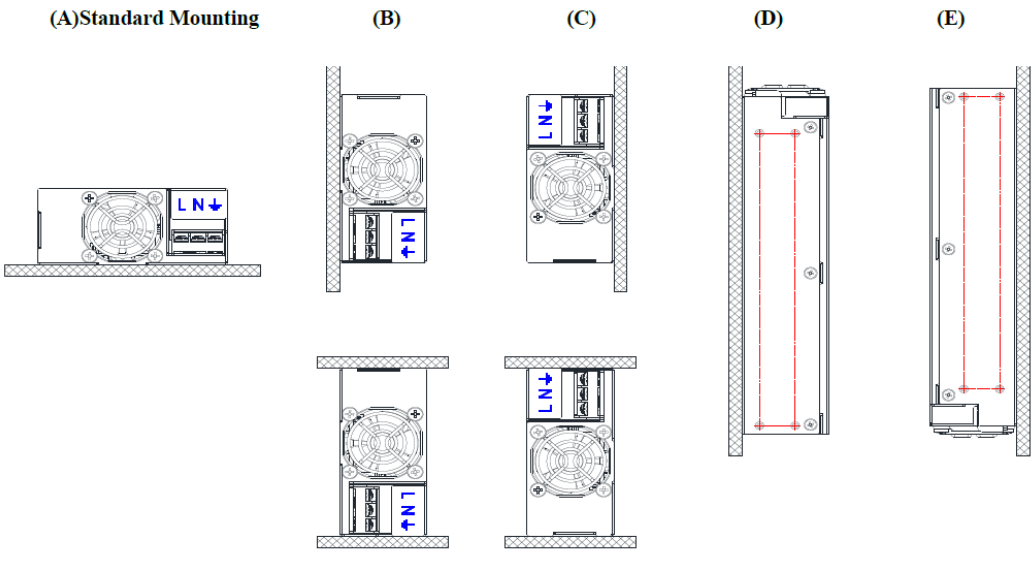
Full tests were performed on model CUS1200M-24, CUS1200M-36 & CUS1200M-48.

For rating differences between the models see below tables:

Table A for rating differences between the models:

Series Model	I/p voltage (Vac)	Freq (Hz)	I/p current (A)	Output Channel	Minimal output	Rated output (typical)	Maximum output
Forced air by build-in intake fan							
CUS1200My-**24xxxxxxx** CME1200Ay-**24xxxxxxx** CUS1200-**24xxxxxxx** CWS1200-**24xxxxxxx**	100-240	50-60	14	Main output	22.8 Vdc	24 Vdc	25.2 Vdc
					22.8Vdc~25.2Vdc, Normal: 50A & 1200W max.		
				Standby power (Optional)	4.8Vdc	5Vdc	5.2Vdc
					2A	2A	1.9A
CUS1200My-**36xxxxxxx** CME1200Ay-**36xxxxxxx** CUS1200-**36xxxxxxx** CWS1200-**36xxxxxxx**	100-240	50-60	14	Main output	34.2Vdc	36 Vdc	37.8 Vdc
					34.2Vdc~37.8Vdc, Normal: 33.3A & 1198.8W max.		
				Standby power (Optional)	4.8Vdc	5Vdc	5.2Vdc
					2A	2A	1.9A
CUS1200My-**48xxxxxxx** CME1200Ay-**48xxxxxxx** CUS1200-**48xxxxxxx** CWS1200-**48xxxxxxx**	100-240	50-60	14	Main output	45.6 Vdc	48 Vdc	50.4 Vdc
					45.6Vdc~50.4Vdc, Normal: 25A & 1200W max.		
				Standby power (Optional)	4.8Vdc	5Vdc	5.2Vdc
					2A	2A	1.9A
Remark: Operating temp.: up to +70ºC (operating temperature depending on equipment's load, mounting position, for details refer to instruction manual).							

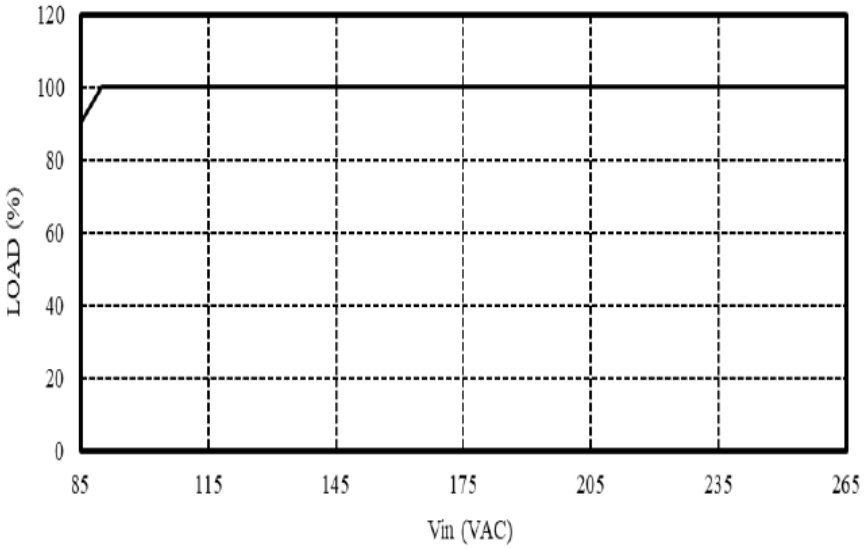
Mounting Directions:



Derating Curve:

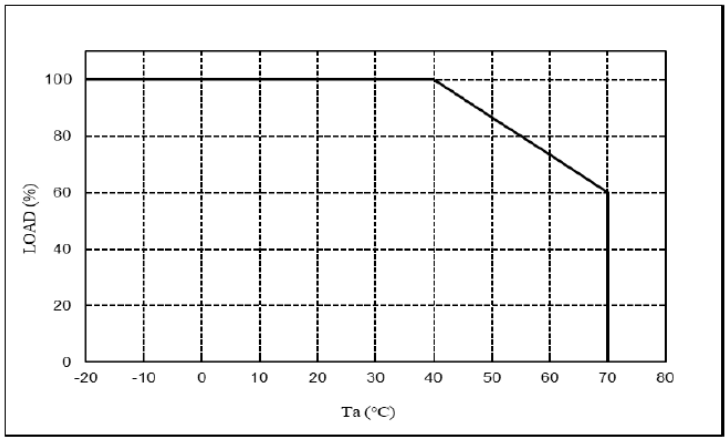
OUTPUT DERATING VERSUS INPUT VOLTAGE:

INPUT VOLTAGE (VAC)	MOUNTING A,B,C,D,E
	LOAD (%)
85	90
90~265	100



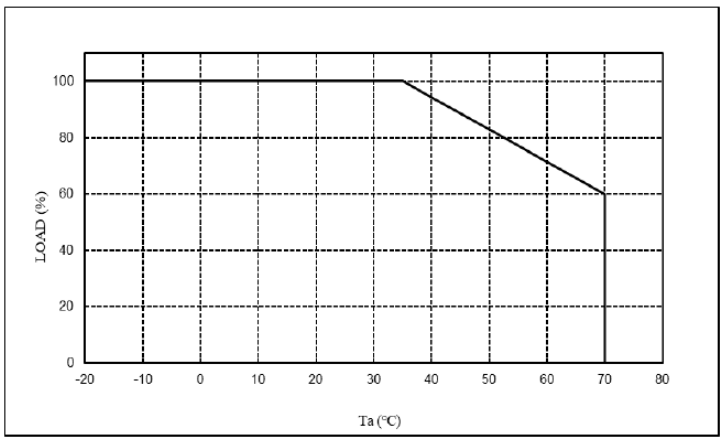
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta):

For model CUS1200M-36 & CUS1200M-48



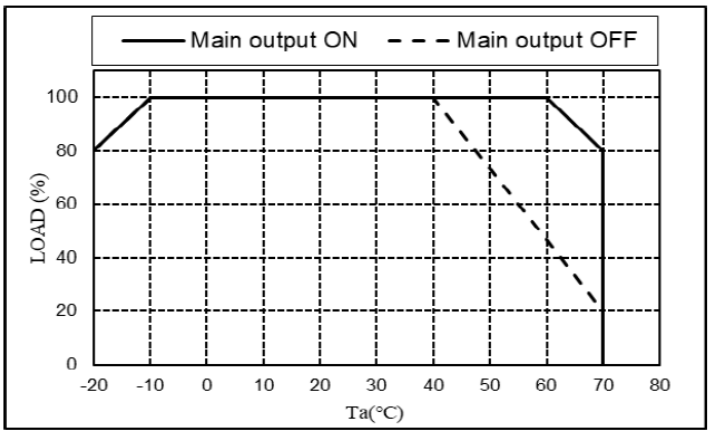
Ta (°C)	LOAD (%)
-20 - +40	100
50	86.7
60	73.3
70	60

For CUS1200M-24:



Ta (°C)	LOAD (%)
-20 - +35	100
40	94.3
50	82.9
60	71.5
70	60

STANDBY SUPPLY OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (TA):



Ta (°C)	LOAD (%)	
	Main output ON	Main output OFF
-20	80	80
-10 ~ 40	100	100
50	100	73.3
60	100	46.7
70	80	20

Definition of various:

CUS1200My-zxxxxxxx, CME1200Ay-zxxxxxxx, CUS1200-zxxxxxxx, CWS1200-zxxxxxxx

(y=blank; z = 24, 36, 48; xxxxxxx =/CO, /CO2, /G, /SF, /CQC, other alphanumeric character, symbol or blank)

(where “xxxxxxx” can be any alphanumeric character, symbol or blank, non safety relevant information.)

Variable:	Range of variable:	Content:
y	blank	Denotes for standard model
z	24, 36 or 48	Denoting output voltage 24Vdc, 36Vdc or 48Vdc.
xxxxxxx	blank	Denotes for standard model
	/CO	Denotes for single side PWB Coating
	/CO2	Denotes for double side PWB Coating
	/SF	Denotes for single fuse
	/G	Denotes for low earth Leakage current
	/CQC	Denotes for CQC approval
	other alphanumeric character, symbol	For market purposes, no construction differences and no safety impact.

Note: These suffixes may be used together (e.g. /G, /GCO)

Additional Information:

- The product is a component type switching power supply, the overall compliance shall be investigated in the complete end system/equipment, in particular as:
  - Fire enclosure
  - Mechanical enclosure
  - Electrical enclosure
- Some components are **pre-certified**, which have been evaluated according to the relevant requirements of IEC 62368-1, are employed in this product. Their suitability of use has been checked according to clauses 4.1.1 and 4.1.2.
- The product is to be operated up to 5000 m above sea level, the minimum clearances were multiplied by the factor given in Table A.2 of IEC 60664-1: 1.48.
- The input circuit includes one fuse (F1A) in the Line conductor and the other fuse (F1B) is optional in neutral conductor. Overall consideration needed to re-check in the end-use product regarding addition of the second fuse having the same or better characteristics in order to comply with fusing requirements of the standard.

Additional application considerations – (Considerations used to test a component or sub-assembly) –

The equipment is a component intended for incorporation in IT equipment, the overall compliance shall be investigated in the complete end system.

The power supply cord set was not evaluated together with the equipment. The suitable certified power supply cord set has to be provided in the country where the equipment is sold.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
All circuits except for output circuits	ES3
Output circuit	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
All circuits	PS3
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Sharp edges and corners	MS1
Moving parts (DC fan, plastic fan blades)	MS3
Equipment mass – mass < 7 kg	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Switch button surface for models with /PT or /PT1	**TS1**
For parts expcet switch button surface, to be determinied by end-product use	--
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE ☒ **ES** ☒ **PS** ☒ **MS** ☐ **TS** ☐ **RS**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Instructed person, Skilled person	ES3: Primary circuits	Bleeding resistors or ICX, Certified X-Capacitor & Y-Capacitors, Insulation sheet	Earthed Protectively bonding chassis	Isolating Transformers and certified Optocouplers
Instructed person, Skilled person	ES1: Output	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials	PS3: > 100 Watt circuit (Primary and secondary circuits)	Equipment safeguards (no ignition occurs and no such temp. attained specified in 6.3.1 (a)	Equipment safeguards (e.g. rated V-0 PCB, combustible material rated V-2 min., metal fire barrier or enclosure; see 6.4.5 and 6.4.6)	N/A
Enclosure (metal chassis)	PS3: > 100 Watt circuit (primary and secondary circuits)	See 6.3.1 (a)	Equipment safeguards (control of fire spread, metal enclosure)	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Sharp edge and corners	Rounded edge and corners	N/A	N/A

Ordinary	MS3: Moving parts (DC fan)	N/A	N/A	N/A
Ordinary	MS1: Equipment mass – mass < 7 kg	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
For parts expcet switch button surface, to be determinied by end-product use	--	--	--	--
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				