Ref. Certif. No.

JPTUV-171039

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 62368-1:2018 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate	CN25Y5QP 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..... :	CN25Y5QP 001
Date of issue ..... :	2025-03-19
Total number of pages ..... :	107 (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 62368-1:2018
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_1E
Test Report Form(s) Originator.... :	UL(US)
Master TRF ..... :	Dated 2022-04-14

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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 (65 pages)
- ATTACHMENT – Photo Documentation (9 pages)

Note: Total number of pages in each attachment 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, US, CA, SA, AU, NZ, JP, KR.

Explanation of used codes: US=United States of America, CA=Canada, SA= Saudi Arabia, AU=Australia, NZ=New Zealand, JP = Japan, KR = Korea.

☒ **The product fulfils the requirements of**

IEC 62368-1:2018
EN IEC 62368-1:2020+A11:2020
CSA/UL 62368-1:2019**.**

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)

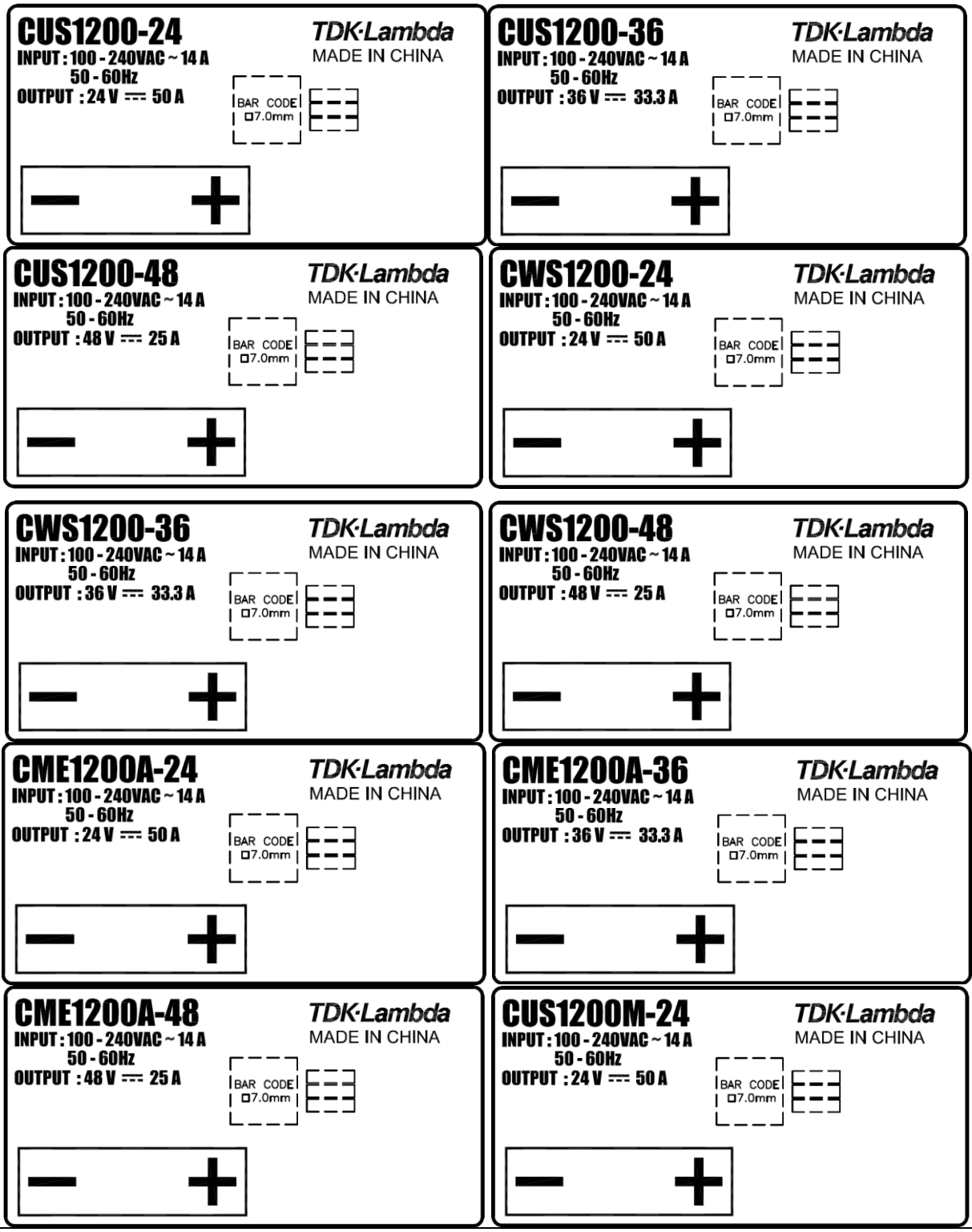
Information on uncertainty of measurement:
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the 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.

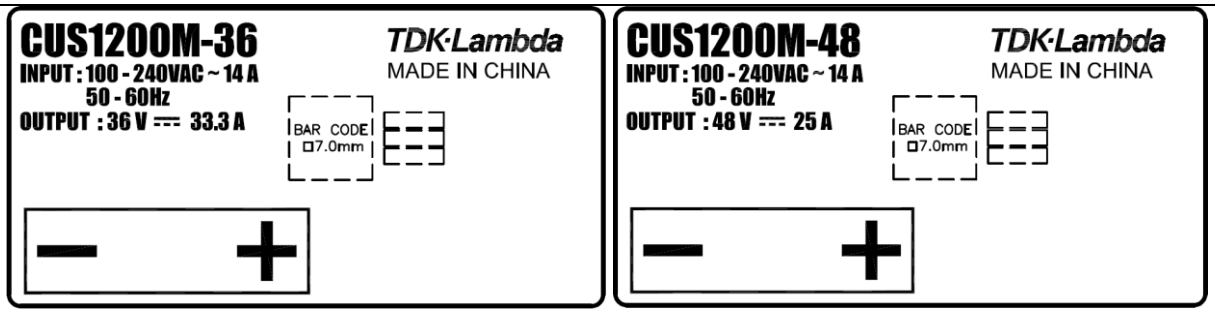
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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:	
Product group .....:	☐ end product ☒ built-in component
Classification of use by .....:	☐ Ordinary person ☐ Children likely present ☒ Instructed person ☒ Skilled person
Supply connection.....:	☒ AC mains ☐ DC mains ☐ 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 ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☒ permanent connection ☒ mating connector☒ other: Termianl block
Considered current rating of protective device.....:	☒ 32A (for EU) or 20 A (for US/CSA); Location: ☒ building ☐ equipment ☐ N/A
Equipment mobility .....:	☐ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☒ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) .....:	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment .....:	☒ Class I ☐ Class II ☐ Class III ☐ Not classified ☐
Special installation location .....:	☐ N/A ☒ restricted access area ☐ outdoor location☐
Pollution degree (PD) .....:	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}.....:	70 °C (operating temperature depending on equipment's load, mounting position, for details refer to page 9-11) ☐ Outdoor: minimum °C
IP protection class .....:	☒ IPX0 ☐ IP___
Power systems .....:	☒ TN ☐ TT ☒ IT - 230 V $_{L-L}$ ☐ not AC mains
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.

☐ **This Test Report Form contains requirements according to IEC/ISO …... Standard dated ….. and includes** Corrigendum dated …….
(Note: The above text maybe removed if not applicable)

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:

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 outputs 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. Details refer to photo documentation.

See Model List below for details.

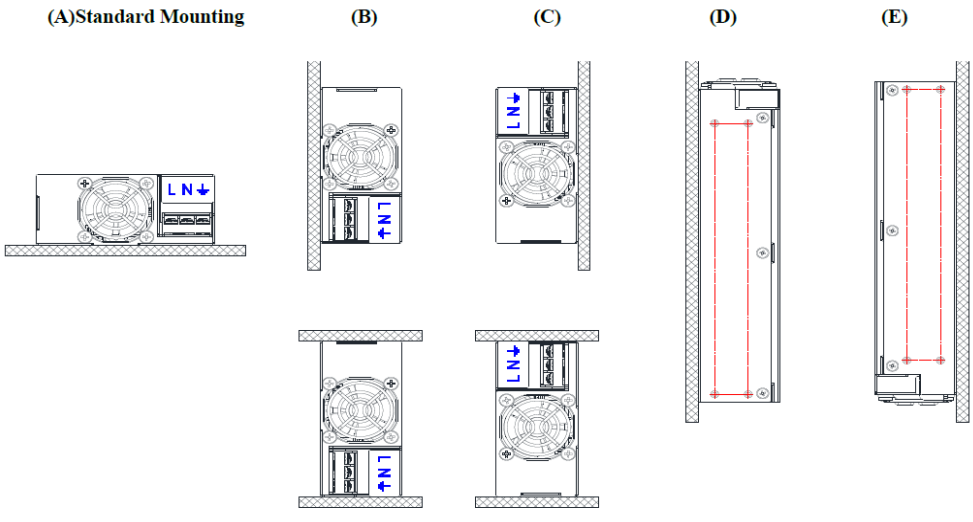
Full tests were performed on model CUS1200M-24, CUS1200M-36 & CUS1200M-48.

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).							

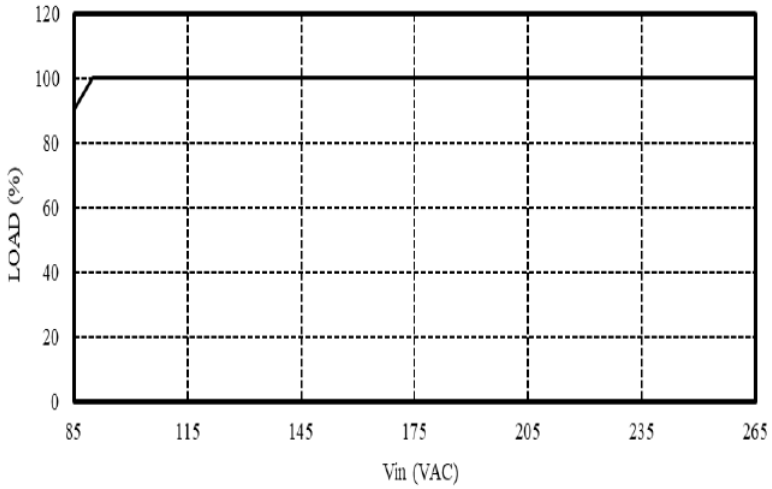
Mounting Directions:



Derating Curve:

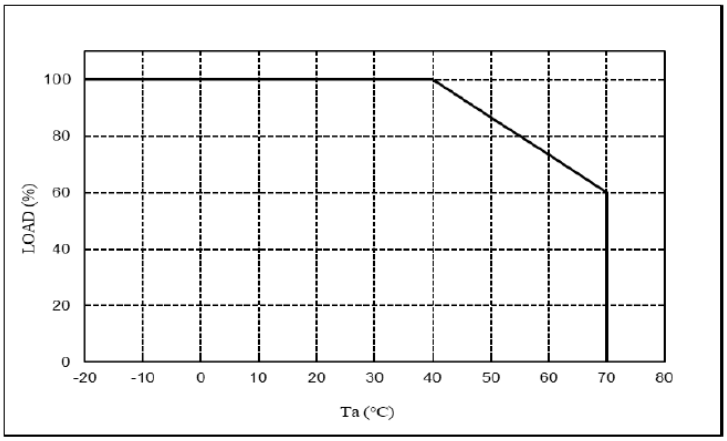
OUTPUT DERATING VERSUS INPUT VOLTAGE:

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



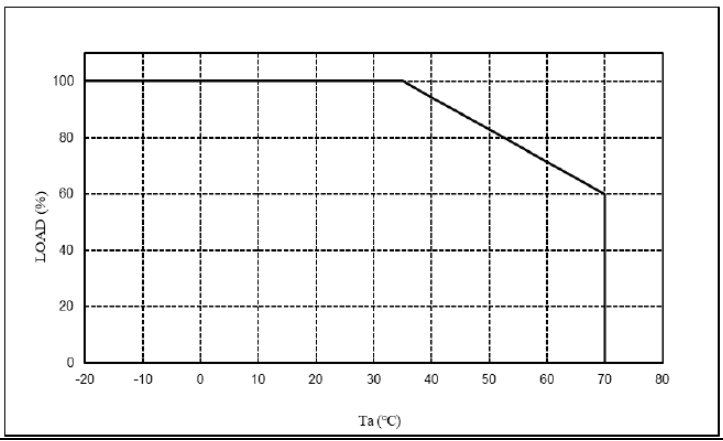
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta):

For model CUS1200M-36 & CUS1200M-48



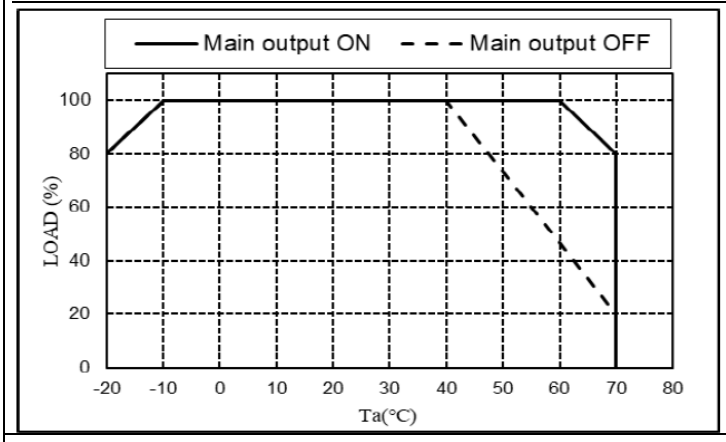
Ta (°C)	LOAD (%)
-20 - +40	100
50	86.7
60	73.3
70	60

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.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Primary circuits of all models	Skilled person, Instructed person	Bleeding resistors or ICX, Certified X-Capacitor & Y-Capacitors, Insulation sheet	Earthed Protectively bonding chassis	Isolating Transformers and certified Optocouplers
ES1: Output terminal	Skilled person, Instructed person	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS3: > 100 Watt circuit (All circuits)	Combustible materials within equipment fire enclosure	See 6.3.1	See 6.4.5 and 6.4.6	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
--	--	--	--	--
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS3: Fan blades	Skilled person, Instructed person	--	--	--
MS1: Sharp edges and corners	Skilled person, Instructed person	--	--	--
MS1: Equipment mass – mass < 7 kg	Skilled person, Instructed person	--	--	--
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
To be determinied by end-product use	--	--	--	--
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
--	--	N/A	N/A	N/A

Supplementary Information: "B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings
☒ **ES** ☒ **PS** ☒ **MS** ☐ **TS** ☐ **RS**