Underwriters Laboratories (UL LLC)
Safety Certification Body (CB) Report

Model:	NV700 or NV7 or NV-700 (see model differences for details of NV700 range model configurations)
Device Description:	Switch Mode Power Supply
Applicant:	TDK-LAMBDA UK LTD KINGSLEY AVE ILFRACOMBE DEVON, EX34 8ES UNITED KINGDOM
Manufacturer:	Same as Applicant
Manufacturing Facility(ies):	Same as Applicant PANYU TRIO MICROTRONIC CO. LTD SHIJI INDUSTRIAL ESTATE DONGYONG NANSHA GUANGZHOU GUANGDONG, 511453 CHINA
Report No.:	E331788-D1008-1/A0/C0-CB
Report (Re)Issue Date:	2021-11-16
Base Standard(s):	IEC 61010-1:2010/AMD1:2016/COR1:2019
Additional Standards:	-
Report Types:	This report consists of the following report types: - CB Report & Certificate

This report covers the Safety evaluation of the referenced model(s) according to the standard(s) specified above.

The **CB Certificate** is provided as a separate enclosure to this report and not provided in the body of this report.

Table of Contents

Report Modifications Summary

The following changes were made to this report. If none listed in the below table, this report is the originally issued report.

The following scheme is used throughout this report to reflect the **Report No.**:

(File No.) – (Report Ref. No.) – (x) / A(y) / C(z) – YYY, where:
(x) = Report (Re)Issue No.
(y) = Amendment No.
(z) = Correction No.
YYY = Report Type (UL/CB/IEC)

*NOTE: The **CB Certificate** may not be updated for report corrections that don't affect the CB Certificate contents; therefore if this report includes a correction number (z), it may not be reflected in the CB Certificate.*

Date Modified *(Year-Month-Day)*	Modifications Made (include Report Reference Number)	Modified By
2021-11-16	This report is a reissue of CBTR Ref. No.: E331788-A15-CB-2, CB Test Certificate Ref. No. DK-48638-UL and E331788-A15-CB-2-Amendment-1, CB Test Certificate Ref. No. DK-48638-A1-UL. and CBTR Ref. No. E331788-A15-CB-2-Amendment-2, CB Test Certificate Ref. No.DK-48638-A2-UL. Within this reissue standards has been upgraded to the newest editions and the following changes have been made: - Standards were updated on critical omponent list - Components licenses were attached to the report - Capacitor Murata RA series and SA series with the same electrical ratings has been added as alternate to critical component list. No testing was considered necessary to make these changes. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.	Marcin Zurek

Test Report issued under the responsibility of:

TEST REPORT
IEC 61010-1
Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements

Report Number .....:	E331788-D1008-1/A0/C0-CB
Date of issue .....:	2021-11-16
Total number of pages.....:	221
Name of Testing Laboratory preparing the Report.....:	UL VS Limited Unit-1-3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Applicant's name.....:	TDK-LAMBDA UK LTD
Address .....:	KINGSLEY AVE ILFRACOMBE DEVON, EX34 8ES UNITED KINGDOM
Test specification:	
Standard.....:	IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016
Test procedure .....:	CB Scheme
Non-standard test method……..:	N/A
TRF template used .....:	IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No.....:	IEC61010_1P
Test Report Form Originator.....:	VDE Prüf- und Zertifizierungsinstitut GmbH
Master TRF.....:	2021-04-12

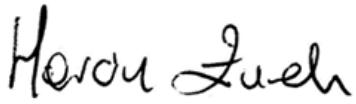
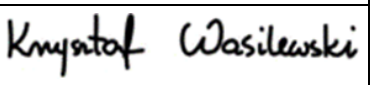
This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description.....:	Switch Mode Power Supply
Trade Mark.....:	TDK-Lambda
Manufacturer.....:	Same as Applicant
Model/Type reference.....:	NV700 or NV7 or NV-700 (see model differences for details of NV700 range model configurations)
Ratings.....:	100-240Vac nominal, (90-264Vac including tolerances). 47-440Hz, 11A rms Max. (see model differences for details of model ratings)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

[X] **CB Testing Laboratory:**		
Testing location/ address .....:	UL VS Limited Unit-1-3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom	
Tested by (name, function, signature) .....:	Marcin Zurek. Project Handler	
Approved by (name, function, signature) ....:	Krzysztof Wasilewski, reviewer	
[ ] **Testing procedure: CTF Stage 1:**		
Testing location/ address .....:		
Tested by (name, function, signature) .....:		
Approved by (name, function, signature) ....:		
[ ] **Testing procedure: CTF Stage 2:**		
Testing location/ address .....:		
Tested by (name, function, signature) .....:		
Witnessed by (name, function, signature) ...:		
Approved by (name, function, signature) ....:		
[X] **Testing procedure: CTF Stage 3:**		
[ ] **Testing procedure: CTF Stage 4:**		
Testing location/ address .....:	TDK-Lambda Ltd, Kingsley Avenue, Ilfracombe, Devon, EX348ES, UK	
Tested by (name, function, signature) .....:	T. Burgess S. Hirstwood (Tester)	See the original CBTR for signature
Witnessed by(name, function, signature) ....:		
Approved by (name, function, signature) ....:	K.P. Tizzard (Reviewer)	See the original CBTR for signature

Supervised by (name, function, signature) ..:	Bartlomiej Zmijewski (Handler)	See the original CBTR for signature

List of Attachments (including a total number of pages in each attachment)		
Document No.	Documents included / attached to this report (description)	Page No.
	Refer to Appendix A of this report. All attachments are included within this report.	

Documents referenced by this report (available on request):		
Document Name or No.	Documents description	Page No.
	Refer to Appendix A of this report. All attachments are included within this report.	

Summary of testing:

Refer to the Test List in Appendix B of this report if testing was performed as part of this evaluation.

Clause	Comment
Refer to the Test List in Appendix B of this report if testing was performed as part of this evaluation.	*Refer to the Test List in Appendix B of this report if testing was performed as part of this evaluation.*

Test Report History:
This report may consist of more than one report and is only valid with additional or previous issued reports:

Report Ref. No.	Item
Refer to Report Modifications under General product information for any modifications made to this report.	

Tests performed (name of test and test clause):	**Testing location:**
Refer to the Test List in Appendix B of this report if testing was performed as part of this evaluation.	*Refer to the Test List in Appendix B of this report if testing was performed as part of this evaluation.*

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

USA, Canada, EU Group

[X] The product fulfils the requirements of IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016.

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

[ ] **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

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

[ ] **Statement not required by the standard used for type testing**

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

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.

Refer to the enclosure(s) titled Marking Label in the Enclosures section in Appendix A of this report for a copy.

Test item particulars :	
Type of item:	Laboratory
Description of equipment function:	Switch Mode Power Supply for building in.
Connection to mains supply:	None unless via the IEC60320 inlet.
Overvoltage category:	II
Pollution degree:	2
Means of protection:	Class I (PE connected)
Environmental conditions:	50°C ambient
For use in wet locations:	No
Equipment mobility:	Built-in
Operating conditions:	continuous
Overall size of equipment (W x D x H)	280 x 125 x 41mm Max.
Mass of equipment (kg):	2kg Max.
Marked degree of protection to IEC 60529:	N/A
Possible test case verdicts:	
- Test case does not apply to the test object .....:	N/A (Not Applicable)
- Test object does meet the requirement .....:	P (Pass)
- Test object does not meet the requirement .....:	F (Fail)
Testing:	
Date of receipt of test item .....:	2013-06-24, 2014-05-21 to 2014-10-02, 2017-11-20
Date(s) of performance of tests .....:	2013-07-05 to 2013-07-08, 2014-06-03 to 2015-05-05, 2017-11-20

General remarks:

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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Throughout this report a 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

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

Name and address of factory (ies)..... :	Same as Applicant PANYU TRIO MICROTRONIC CO. LTD SHIJI INDUSTRIAL ESTATE DONGYONG NANSHA GUANGZHOU

GUANGDONG, 511453 CHINA

General product information and other remarks:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Refer to the Report Modifications for any modifications made to this report.

Product Description

NV700 or NV-700 series. Switch mode power supplies for building into end equipment. (See model differences for details of model configurations)
This product range is available as a forced air cooled version (in-built fan) with screw terminal connections or an IEC 60320 inlet. It is also available as a customer air cooled version where the end cap is not fitted and the customer must provide an air flow and measure appropriate temperatures of components within the product.

Additional Information

Customer Air Cooling:

The following method must be used for determining the safe operation of PSUs when C or U options (Customer Air) are fitted, i.e. fan not fitted to PSU. The minimum permitted airflow for customer air cooling is 0.5m/s.

For PSUs and assemblies cooled by customer supplied airflow the components listed in the following table must not exceed the temperatures given. Additionally ratings specified for units with an internal fan shall still be complied with, e.g. mains input voltage range, maximum output power, module voltage/current ratings and maximum ambient temperature. To determine the component temperatures the heating tests shall be conducted in accordance with the requirements of IEC61010-1. Consideration should also be given to the requirements of other safety standards.

Test requirements include: PSU/assembly to be fitted in its end-use equipment and operated under the most adverse conditions permitted in the end-use equipment handbook/specification and which will result in the highest temperatures in the PSU/assembly. To determine the most adverse conditions consideration shall be given to the end use equipment maximum operating ambient, the PSU/assembly loading and input voltage, ventilation, end use equipment orientation, the position of doors & covers, etc. Temperatures shall be monitored using type K fine wire thermocouples (secured with cyanoacrylate adhesive, or similar) placed on the hottest part of the component (out of any direct airflow) and the equipment shall be run until all temperatures have stabilized.

Circuit Ref.	Description	Max Temperature (°C)
L2, L3	Filter/PFC assy: Choke winding	155
C1, C3, C4	Filter/PFC assy: X capacitors	100
L1	Filter/PFC assy: Boost choke winding	130
C12, C13	Filter/PFC assy: Electrolytic capacitor	105
T1	Filter/PFC assy: Flyback transformer winding	130
RL1	Filter/PFC assy: Relay	100
TX1, TX2	Modules: Power transformer windings	130
L1, XL1	B, BH & DB module chokes	125
L1	C & CM module chokes	140
T2	Global Options: Transformer winding	130
Various	All other choke & transformer windings	120
Various	All <=10mm diameter electrolytic capacitors	105
Various	All 12.5mm diameter electrolytic capacitors	105

The schematics are kept in file at the CBTL and can be provided by the manufacturer upon request by NCB's/CBTL's.

This report to include IEC61010-1 is a re-issue of CBTR Ref. No. E331788-A15-CB-1 dated 2013-07-25 including amendments and corrections with CB Test Certificate Ref. No. DK-33974-UL dated 2013-07-25. Based on previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard.
Only the tests below were deemed necessary.
The original report was modified on 2015-05-05 to include the following changes/additions:-
1. Addition/deletion of multilayer PWBs to critical component list
2. Alternative input connector (J1) same ratings, no testing considered.
3. Critical component certificates updated
4. Correction/addition to critical components list
5. Enclosures updated to include revised handbook and drawings
6. Alternative fuse (F2 (Daito)) tested
7. Alternative fan (YS Tech) tested
8. Assessed to IEC61010-1
9. Cemented joint test updated

Project 4787707401 information:
This is Amendment 1 to the CB Test Report E331788-A15-CB-2 dated 2015-08-03 with Correction 1 dated 2015-09-22 and with CB Test Certificate DK-48638-UL.
This Amendment is published due to changes provided in Report Summary.
No additional testing has been done.
This amendment shall be read in conjunction with Original Test Report and Test Certificate and with previous Correction 1.

Technical Considerations

- The product was investigated to the following standards:

  Main Standard(s):

  IEC 61010-1:2010/AMD1:2016/COR1:2019

  From Country Differences:

  - USA: UL 61010-1, 3rd Edition, May 11, 2012, Revised July 19, 2019
  - Canada: CAN/CSA-C22.2 No. 61010-1(2012-05), 3rd Edition, with revisions through 2018-11
  - EU Group: EN 61010-1:2010/A1:2019 (Edition 3.1)

  Additional Standards:

  -

- The following additional investigations were conducted: -
- The product was not investigated to the following standards or clauses: -
- The following accessories were investigated for use with the product: -
- Equipment class: Class I

  Equipment type: For building in

  The product was submitted and tested for use at the maximum recommended ambient temperature (Tmra) of 50°C. From 50°C to 65°C the total output power and the module current

ratings are both derated at 2.5% per °C.

For any non-certification testing - Unless specified otherwise in this report, the compliance “Decision Rule” is based on Simple Acceptance (Measurement Uncertainty is not taken into account when making a statement of conformity)

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

This component has been judged on the basis of the creepage and clearances required in the indicated Standards, which would cover the component itself if submitted for Listing:
UL 61010-1, 3rd Edition, May 11, 2012, Revised July 19, 2019, CAN/CSA-C22.2 No. 61010-1(2012-05), 3rd Edition, with revisions through 2018-11, IEC 61010-1:2010/AMD1:2016/COR1:2019, EN 61010-1:2010/A1:2019 (Edition 3.1)
The end-product shall consider that: The enclosure does not serve as a fire/electrical/mechanical enclosure excluding the external face of the IEC60320 inlet.
The need for the following shall be considered in the end-product: Bonding to protective earthing terminal (Class I construction)
The output connectors are Suitable for factory wiring only
Creepage and clearance distances were based on a maximum working voltage of Primary to earth dead metal: 622Vpeak, 343Vrms.
Primary to secondary: 650Vpeak, 363Vrms.
Insulation between primary circuits and accessible dead metal complies with the requirements for Basic insulation
Insulation between primary and secondary circuits complies with the requirements forDouble and Reinforced insulation
The following tests shall be performed in the end-product evaluationTemperature for customer air models
Permissible Limits for Accessible Parts
Dielectric Strength
The unit is considered acceptable for use at on a max branch circuit of 20A
The unit is considered acceptable for use in a max ambient of 50°C. From 50°C to 65°C the total output power and the module current ratings are both derated at 2.5% per °C.
End-product temperature tests for power supplies shall consider that the following transformers employ the indicated insulation system Transformer TX1 Class F (155°C)
Transformer TX2 Class F (155°C)
Transformer T1 Class F (155°C)
Transformer T2 Class F (155°C)

End-product dielectric strength tests shall be based on the maximum working voltage of Primary to earth dead metal: 622Vpeak, 343Vrms.
Primary to secondary: 650Vpeak, 363Vrms.
The leakage current tests have been provided for information only. This test must be considered in the end product application and must be repeated for frequencies above 63Hz.
This product has been assessed for a maximum altitude of 3000m
The risk associated with clause 5.4.5 shall be assessed in the end product.

Report Modifications

Date Modified *(Year-Month-Day)*	Modifications Made (include Report Reference Number)	Modified By
2021-11-16	This report is a reissue of CBTR Ref. No.: E331788-A15-CB-2, CB Test Certificate Ref. No. DK-48638-UL and E331788-A15-CB-2-Amendment-1, CB Test Certificate Ref. No. DK-48638-A1-UL. and CBTR Ref. No. E331788-A15-CB-2-Amendment-2, CB Test Certificate Ref. No.DK-48638-A2-UL. Within this reissue standards has been upgraded to the	Marcin Zurek

	newest editions and the following changes have been made: - Standards were updated on critical omponent list - Components licenses were attached to the report - Capacitor Murata RA series and SA series with the same electrical ratings has been added as alternate to critical component list. No testing was considered necessary to make these changes. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, has been determined that the product continues to comply with the standard.	

Description of model differences:

NV700 models as described below:

Units may be marked with a Product Code: K7x or NV7x where x may be up to any six letters and/or numbers 0 to 9.

Unit Configuration (Description:) Code may be prefixed by NS # followed by / or - (where # may be any characters indicating non-safety related model differences).

Unit Configuration (Description :) Code:

a) NV-700x or NV7x (these models are identical)

where x = H for high hold-up or blank for standard hold-up

b) followed by: S, C or U

where S = Forward airflow, standard fan
C = Customer air, fan not fitted
U = Customer air, fan not fitted, cover not fitted

c) followed by: S or I

where S = Screw input terminals
I = IEC input

d) followed by: S, M, L, R, or T

where S = Standard Leakage (Class B Filter)
M = Medium Leakage
L = Low Leakage
R = Reduced Leakage
T = Tiny Leakage

Unit configuration may be given using the above code and/or by the option description. The input terminal type (screw or IEC) may alternatively be determined by examination of the unit.

e) optionally followed by: EN#V, EN*V, IN#V, IN*V, ES#V, ES*V, IS#V, IS*V.

where EN#V = AC good, global module good, PSU enable, 5-5.5V, 2A standby output
EN*V = AC good, global module good, PSU enable, 12-13.5V, 1A standby output
IN#V = AC good, global module good, PSU inhibit, 5-5.5V, 2A standby output
IN*V = AC good, global module good, PSU inhibit, 12-13.5V, 1A standby output

ES#V = AC good, PSU enable, 5-5.5V, 2A standby output
ES*V = AC good, PSU enable, 12-13.5V, 1A standby output
IS#V = AC good, PSU inhibit, 5-5.5V, 2A standby output
IS*V = AC good, PSU inhibit, 12-13.5V, 1A standby output

where # represents the standby output voltage and is in the range 5 to 5.5V
where * represents the standby output voltage and is in the range 12-13.5V

The Global Options Inhibit and Enable functions permit the customer to turn off or on the main psu outputs and the fan. The standby supply is for use by the customer and provides an SELV output that continues to operate when all the main psu outputs have been turned off using the Inhibit or Enable functions. All the functions of the Global Option pass through a single 8 way PWB socket and are all rated SELV.

Modules:
Up to 4 of the following modules types may be fitted:

@B
or @C
or @CM
or @BH

where @ is the output voltage of the module and is within the range given in the single output module table.

or @/#DB or @_#DB

where @ is the output voltage of channel 1 and # is the output voltage of channel 2 of the module. Voltages are within the range given in the DB module tables.

or @/#DA or @_#DA

where @ is the output voltage of channel 1 and # is the output voltage of channel 2 of the module. Voltages are within the range given in the DA module tables. Only 1 DA module may be fitted.

or B/S or B_S

where B/S or B_S indicates that a blanking plate is fitted in place of a module.

The following nomenclature may optionally be used for outputs connected in series:
(Note that outputs may be connected in series even when this nomenclature is not used)

@BB or @ BHB or @BBH or @BHBH or @CC or @CCM

where @ is the total voltage of any two B, BH, C or CM modules connected in series.

or @/#BDB or @_#BDB or @BHDB

where @ is the total series voltage of any B or BH module and DB module channel 1. # is the output voltage of the DB module channel 2. Voltages for # are within the range given in the DB module tables.

or @HDB

where @ is the total series voltage of any DB module channel 1 and channel 2.

For all outputs connected in series:
Permissible min. value for @ is given by summing the min. voltage ratings of the outputs connected in series.
Permissible max. value for @ is given by summing the max. voltage ratings of the outputs connected in series.

Custom Models:

Model: NV-700 RSS IN5V 12BH 12BH
Maximum outputs: 12.5V, 20A; 12.5V, 20A (total power 500W max.)
Maximum ambient: 65°C with 2.5%/°C derating of total power and module current above 50°C
Orientations: Horizontal with chassis lowest, on either side or vertical with the airflow upwards.
Comments: PSU has reverse air.

Model: NV-700 CSS ES5V 12C (NV722DCC and NV7Y019T)
Maximum output: 12V, 37.5A (peak power rating as given in electrical and thermal ratings section on following page)
Maximum ambient: 65°C with 2.5%/°C derating of total power and module current above 50°C
Orientations: Horizontal with chassis lowest, on either side or vertical with the airflow upwards.
Maximum operating altitude: 5000m

Output Interface Assembly:

One of the following output interface assemblies may optionally be fitted:

Wxxx

where xxx is a number between 001 and 999. These assemblies attach to the module output(s) and contain circuitry providing one or more of the following: current sharing, reduced current limit, fusing, sequencing, diode or-ing, module good, filtering, connectors or terminal blocks for outputs or signaling purposes, indicator lamps or LEDs.

Documentation to be made available to the customer detailing ratings of all assembly outputs.

ELECTRICAL AND THERMAL RATINGS

Nominal Input Voltage	100 - 240 Vac
Input Voltage Range	90 - 264 Vac #
Input Frequency Range	47 - 440 Hz
Maximum Input Current	11 A rms

Subject to limitations, see table below.

Code	Cooling Option	Input Voltage) Range (Vac)	Total output power (W)	Maximum ambient (°C)	Derating
S	Forward airflow standard fan	90 - 99.9	700W continuous (850W peak if 700W average #)	65 above 45°C	2.5% per °C
S	Forward airflow standard fan	100 - 149.9	700W continuous (850W peak if 700W average #)	65 above 50°C	2.5% per °C
S	Forward airflow standard fan	150 - 264	1150W continuous (1450W peak if 1150W average #)	65 above 45°C	2.5% per °C
C, U	Customer air fan not fitted	Refer to Customer Air Cooling section for details			

Global Option standby outputs (12-13.5V at 1A or 5-5.5V at 2A) should not be included when calculating total PSU output power.
The total output power, module output currents and Global Option output currents are derated by the given value.

The PSU may output the given peak power for up to 10 seconds providing that the average power from the PSU does not exceed the stated value.

Global Options with output voltages between 5.01 and 5.5V have their max. output current linearly derated from 2A at 50°C ambient to 1.4A at 65°C ambient.

Permitted orientations: Horizontal with chassis lowest, on either side or vertical with the airflow upwards.

Single Output Modules:

Module	Nominal Voltage (V)	Voltage Range (V)	# Max. Current
B	3.3	3.135 - 3.6	40A
	5	4.75 - 5.5	4.75 - 5.0V: 40A 5.0 - 5.5V: Linearly derate from 40 to 36A
	8	7 - 9	7 - 8V: 22.5A 8 - 9V: Linearly derate from 22.5 to 20A
	12	12 - 15.5	12 - 12.5V: 19.5A 12.5 - 15.5V: Linearly derate from 19.5 to 15A
	24	24 - 28	24V: 10A 24 - 28V: Linearly derate from 10 to 8A
BH	12	12 - 15.5	12 - 12.5V: 20A 12.5 - 15.5V: Linearly derate from 20 to 15.5A
	24	24 - 28	24V: 10A 24 - 28V: Linearly derate from 10 to 8.5A
C & CM	12	12 - 13.2	12V: 37.5A. Derated to 450W above 12V
	16	15 - 17.6	15 - 16V: 28.12A. Derated to 450W above 16V
	24	24 - 26.4	24V: 18.75A. Derated to 450W above 24V
	30	27 - 32	27V: 16.67A. Derated to 450W above 27V

C & CM modules may output up to 600W for up to 10 seconds providing that the average power from the module does not exceed 450W.

Dual Output Modules:

Dual Output Modules, Output 1

Module	Nominal Voltage (V)	Voltage Range (V)	# Max. Current
DA	12	12.25	3A
DB	3.3	3.135 - 3.6	25A
	5	4.75 - 5.5	25A
	6	5.5 - 6.5	25A
	12	12 - 15.5	12 - 12.5V: 13A 12.5 - 15.5V: Linearly derate from 13 to 10A
	24	24 - 28	24 - 25V: 7A 25 - 28V: Linearly derate from 7 to 6A

Dual Output Modules, Output 2

Module	Nominal Voltage (V)	Voltage Range (V)	#	Max. Current(A)	Max. Power(W)
DA	12	(-)11.6 - (-)11.9	1		11.9
DB	5	3.3 - 6	10		60
	12	7 - 15.5	5		60
	24	24 - 32	2		50

Voltage measured at the module power terminals. This voltage must not be exceeded when remote sense is used.
DB modules with 6V nominal channel 1 derated as follows:
Ch.1 : 5.5 - 6V Ch.1 + Ch.2 : 195W total.
Ch.1 : 6.01 - 6.5V Ch.1 + Ch.2 : 170W total.

The DB module may be used with output 1 up to 24V at 8.3A and output 2 up to 16V at 3.13A provided the ambient temperature does not exceed 42°C.

SELV and Outputs Connected In Series:

All individual outputs are SELV. Outputs connected in series are non-SELV if the total output voltage + 30% of the highest of those outputs exceeds 60Vdc (the 30% addition allows for a single fault in any one individual channel).
If the total voltage of outputs connected in series exceeds the 60Vdc SELV limit then all outputs must be considered non-SELV.
The total voltage of outputs connected in series must not exceed 160V.
Non-SELV outputs are hazardous and must be guarded or a deflector fitted during installation to avoid a service engineer making inadvertent contact with the output terminals, or dropping a tool onto them.
All outputs have operational spacings to earth, and due consideration must be given to this in the end product design.

Description of special features:
(HV circuits, high pressure systems etc.)

See additional information above.