INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
COMMISSION ELECTROTECHNIQUE INTERNATIONALE (CEI)

Ref. Certif. No.
NO 8578 / A1

IEC SYSTEM FOR CONFORMITY TESTING TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT (IECEE)
CB SCHEME

SYSTEME CEI D'ESSAIS DE CONFORMITE AUX NORMES DE SECURITE DE L'EQUIPMENT ELECTRIQUE (IECEE)
METHODE OC

CB TEST CERTIFICATE
CERTIFICATE D'ESSAI OC

Product *Produit*	**Power supply for building in**
Name and address of the applicant *Nom et adresse du demandeur*	**PULS Elektronische Stromversorgung., GmbH, Arabellastr. 15, D-81925 Munchen, Germany**
Name and address of the manufacturer *Nom et adresse du fabricant*	**PULS Elektronische Stromversorgung., GmbH, Arabellastr. 15, D-81925 Munchen, Germany**
Name and address of the factory *Nom et adresse de l'usine*	**See page 1 in test report**
Rating and principal characteristics *Valeurs nominales et caractéristiques principales*	**2.6/1.4A 100-120/200-240V 50-60Hz, Cl.I, DC-output: 24-28V, 100W**
Trade mark (if any) *Marque de fabrique (si elle existe)*	**PULS**
Model/type Ref. *Ref. de type*	**SL5.yxx**
Additional information (if necessary) *Information complémentaire (si necéssaire)*	**"y" in model name can be 1, 2, 4 or 5 for single phase, "xx" is customer specific version This certificate replaces previous due to corrections in ratings**
A sample of the product was tested and found to be in conformity with *Un échantilléon de ce produit a été essayé et a été considéré conforme à la*	**IEC 60950 2nd Edition, 1991 + Amd. 1, 1992 + Amd. 2, 1993 + Amd. 3, 1995 + Amd. 4, 1996**
as shown in the Test Report Ref. No. which forms part of this certificate *comme indiqué dans le Rapport d'essais numéro de référance* *qui constitute un partie de ce certificat*	**1999 42247**

This CB Test Certificate is issued by the National Certification Body
Ce Certificate d'essai OC est établi par l'Organisme National de Certification

Nemko
P.O. BOX 73, BLINDERN
N-0314 OSLO, NORWAY

Date **2000-02-28**

Signature Lars Hjelpseth
Principal Engineer

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
COMMISSION ELECTROTECHNIQUE INTERNATIONALE (CEI)

Ref. Certif. No.
NO 8581 / A2

IEC SYSTEM FOR CONFORMITY TESTING TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT (IECEE)
CB SCHEME

SYSTEME CEI D'ESSAIS DE CONFORMITE AUX NORMES DE SECURITE DE L'EQUIPMENT ELECTRIQUE (IECEE)
METHODE OC

CB TEST CERTIFICATE
CERTIFICATE D'ESSAI OC

Product *Produit*	**Power supply for building in**
Name and address of the applicant *Nom et adresse du demandeur*	**PULS Elektronische Stromversorgung., GmbH, Arabellastr. 15 D-81925 Munchen Germany**
Name and address of the manufacturer *Nom et adresse du fabricant*	**PULS Elektronische Stromversorgung., GmbH, Arabellastr. 15 D-81925 Munchen Germany**
Name and address of the factory *Nom et adresse de l'usine*	**PULS Elektronische Stromversorgung., GmbH, Arabellastr. 15 D-81925 Munchen Germany**
Rating and principal characteristics *Valeurs nominales et caractéristiques principales*	**2.6/1.4A 115/230V 100-120/200-240V 50-60Hz Cl.I, DC-output: 24-28V, 100W**
Trade mark (if any) *Marque de fabrique (si elle existe)*	**PULS**
Model/type Ref. *Ref. de type*	**SL4.yxx**
Additional information (if necessary) *Information complémentaire (si necéssaire)*	**"y" in model name can be 1, 2, 4 or 5 for single phase, "xx" is customer specific version**
A sample of the product was tested and found to be in conformity with *Un échantilléon de ce produit a été essayé et a été considéré conforme à la*	**IEC 60950 2nd Edition, 1991 + Amd. 1, 1992 + Amd. 2, 1993 + Amd. 3, 1995 + Amd. 4, 1996.**
as shown in the Test Report Ref. No. which forms part of this certificate *comme indiqué dans le Rapport d'essais numéro de référance* *qui constitute un partie de ce certificat*	**1999 42247**
	This certificate replaces previous certificate due to corrections in ratings

This CB Test Certificate is issued by the National Certification Body
Ce Certificate d'essai OC est établi par l'Organisme National de Certification

Nemko
P.O. BOX 73, BLINDERN
N-0314 OSLO, NORWAY

Date **2000-05-30**

Signature **Lars Hjerpseth**
Principal Engineer

Order No. EL/77.00/1267/9906

TEST REPORT
IEC 60950, 2nd Edition, 1991 + Amd. 1, 1992 + Amd. 2, 1993 + Amd. 3, 1995 + Amd. 4, 1996

Product	Power Supply
Name and address of the applicant	PULS Elektronische Stromversorgungen GmbH Arabellastr. 15 D-81925 München
Name and address of the manufacturer	PULS Elektronische Stromversorgungen GmbH Arabellastr. 15 D-81925 München
Name and address of the factory	PULS Elektronische Stromversorgungen GmbH Weltenburgstr. 6 D-81677 München
Rating and principal characteristics	See Page 5. Output: 24-28 Vdc; 100 Watts Maximum.
Trade mark	PULS
Model/type	SL5.xxx, SLR5.xxx, and SL4.xxx (xxx stands for customer specific versions)
Serial no	Prototype.
Tested according to	IEC 60950, 2nd Edition, 1991 + Amd. 1, 1992 + Amd. 2, 1993 + Amd. 3, 1995 + Amd. 4, 1996 and third edition of IEC60950 :1999
	Safety of information technology equipment.
Name and address of the testing laboratory	ERG - Elektrotechnische Revisionsgesellschaft mbH & Co. Test and Certification Institute Reetzstraße 58 D - 76327 Pfinztal Telephone (+49) 7240 63 0 Fax (+49) 7240 6311
Test samples(s) received Tested in period	1999-06-10. 1999-06-10 to 1999-08-20. The test results relate only to the sample(s) tested.
Tested by	signature — date: Mar. 8, 2000 Anthony Villaseñor name in block letters
Verified by	signature — date: 9.3.2000 Markus Petirsch name in block letters

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Additional tests according to:	
Common Modifications, Special National Conditions and National Deviations	EN 60 950 : 1992 + A1 : 1993 + A2 : 1993 + A3 : 1995 + A4 : 1997 + A11 : 1997. Common Modifications, Special National Conditions and National Deviation. (See Appendix EN 60 950 : 1992 + A1 : 1993 + A2 : 1993 + A3 : 1995 + A4 : 1997 + A11 : 1997, confer countries indicated under additional information)
National requirements	Nordic countries : EMKO -TSE(74-SEC)207/94, not covered by Appendix EN 60 950. (See Appendix EMKO-TSE(74-SEC)207/94, confer countries indicated under additional information)
Other requirements	Countries listed in CB Bulletin No. 94AI, dated March 1999 as follows: Austria (AT), Australia (AU) (including New Zealand (NZ)), Belgium (BE), Canada (CA), Switzerland (CH), China (CN), Czech Republic (CZ), Germany (DE), Denmark (DK), Spain (ES), Finland (FI), France (FR), United Kingdom (GB), Greece (GR), Hungary (HU), Ireland (IE), Israel (IL), India (IN), Italy (IT), Japan (JP), Republic of Korea (KR), The Netherlands (NL), Norway (NO), Poland (PL), Russia (RU), Sweden (SE), Singapore (SG), Slovenia (SI), Slovakia (SK), United States (US), South Africa (ZA). All country deviations listed in the CB Bulletin are covered by the Common Modifications, Special National Conditions, National Deviations, and National Requirements noted above except for the following countries which are documented in Country Deviation Appendix's attached to this report: Australia (including New Zealand) : CB Bulletin No. 94AI, March 1999 Canada : CB Bulletin No. 94AI, March 1999 Japan : CB Bulletin No. 94AI, March 1999 Republic of Korea : CB Bulletin No. 94AI, March 1999 Singapore : CB Bulletin No. 94AI, March 1999 United States : CB Bulletin No. 94AI, March 1999

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 testing laboratory.

Possible test case verdicts:
P = Pass, **F** = Fail, **N** = Not applicable. Placed in the column to the right (Verdict)

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	SUMMARY OF TESTING :	
Clause	Information/Remarks	Comments
1.5, 3.2.04	Power supply cord set.	The equipment shall be provided with an approved mains cord set complying with the national regulations of the countries in which the appliance is to be sold.
1.7.10	The equipment is intended and tested for installation to IT power systems (Norway).	The following information should be given (but is not required) in the installation instruction: "This product is also designed for IT power systems with Phase to Phase voltage 230VAC."
1.7.14	Language of safety markings/instruction.	Instructions and equipment marking related to safety is applied in a language which is acceptable in the country in which the equipment is to be sold.
2.7.05	Protection by several devices.	The standard require also a protective device in the NEUTRAL-phase when connected to IT-power system. For Norway, this is not required, ref. List of decisions from OSM.
2.7.06	Warning to service personnel.	After operation of the protective device, the equipment is still under voltage if it is connected to an IT-power system. Norway does not require this warning.

NERG GS geprüfte Sicherheit

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	ADDITIONAL INFORMATION	
	DESCRIPTION OF EQUIPMENT UNDER TEST:	
	Power Supply for DIN Rail Mounting.	
	NAME AND ADDRESS OF PRODUCTION-SITES (FACTORIES):	
	PULS Elektronische Stromversorgungen GmbH Weldenburgstr. 6 D-81677 München	
	INFORMATION ABOUT THE STANDARDS / DOCUMENTS CONSIDERED :	
	See Page 1 and 2.	
	TESTED ACCORDING TO NATIONAL REQUIREMENTS FOR THE FOLLOWING COUNTRIES:	
	According to the Canada, Japan, Republic of Korea, Singapore, and Unidted States requirements of IEC 60950. This report is written and to be used as a basis for obtaining certification from UL, CSA, and VDE.	
	LIST OF APPENDIXES / ENCLOSURES TO THE TEST REPORT :	
	1) National and Worldwide Deviations.	
	2) Photographs.	
	3) Test Record.	
	4) Transformer, PCB-Layout, Schematics.	
	5) Equipment List.	
	6) EN 50178 Test Report.	

NERG GS gepriffte Sicherheit

Order No. EL/77.00/1267/9906

ADDITIONAL INFORMATION: The following information is entered into the CB report by request of the manufacturer to assist in UL certification.

DESCRIPTION

PRODUCT COVERED:

USR, CNR - Switching Power Supply Model SL5.xxx *.

ELECTRICAL RATING:

	Input			Output, (dc)	
Model	V	A	Hz	V	W
SL4.yxx	100-120/200-240	2.6/1.4	50-60	24-28	100
SL5.xxx	485-720Vdc	2.6/1.4		24-28	100
SL5.yxx	100-120/200-240	2.6/1.4	50-60	24-28	100
SL5.zxx	400-500	0.6 / 0.5	50-60	24-28	100
SLR5.xxx (1-phase)	100-120/200-240	2.6/1.4	50-60	24-28	100

* x stands for customer specific versions.
* y stands for 1,2,4,5 and single phase versions
* z stands for 3,6,7,8 and three phase versions

The equipment is:
for building in, Class I (earthed), intended for use on TN power systems.
SL4.xxx fulfils the requirements of limited power source. (IEC60950 : clause 2.11 and IEC61010 Annex F)

Conditions of Acceptability

When installed in the end-use equipment, the following are among the considerations to be made:

1. The power supply shall be installed in compliance with the enclosure, mounting, spacing, casualty and segregation requirements of the ultimate application.
2. Consideration should be given to measuring the temperatures on power electronic components and transformer windings when the power supply is installed in the end-use equipment. All transformers and inductors are provided with Class F insulating systems.
3. The power supplies are provided with reinforced insulation, input to output. The outputs are considered to be SELV.
4. The input/output connectors are acceptable for field wiring.
5. The need for conducting a Leakage Current Test is to be determined as part of the end product evaluation.
6. The temperature test was conducted with the power supply 100 mm above bench in horizontal position.
7. An external fuse rated >= 10 A up to <= 40 A has to be provided.

Note about the standards:

The power Supply was evaluated in accordance to EN60950 A4, CSA22.2-950 3rd Edition and UL1950 3rd Edition and IEC60950:A4 . Also EN50178 and for applications according EN 50178.

Factory Inspection:

According the Low Voltage Directive and EN50116 the following production tests have to be performed:

1. Dielectric Test Primary to Ground 1500 Vac 1 Second. The SELV outputs are connected to Ground
2. Ground Continuity 25 A between enclosure and the PE input pin.

NERG GS geprüfte Sicherheit

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1.0.00	**GENERAL**		—
1.1.00	**SCOPE**		—
1.1.01	The equipment is within the scope	The product is within the scope of IEC 60950	—
1.1.02	Additional requirements:		—
	Exposure to extreme temperatures, excessive dust, moisture or vibration; to flammable gases; to corrosive or explosive atmospheres	This equipment is intended to operate in a "normal" environment (Offices and homes)	—
	Electromedical equipment connected to the patient	This equipment is not an electromedical equipment intended to be physically connected to a patient	—
	Equipment used in vehicles, ships or aircrafts, in tropical countries or at elevations > 2 000 m	This equipment is intended to operate in a "normal" environment (Offices and homes)	—
	Equipment subject to transient overvoltages exceeding those for Overvoltage Category II (IEC 60664)	This equipment is not regarded to be subject to transient overvoltages exceeding those for Installation Category II according to IEC 60664	—
	Equipment intended for use where ingress of water is possible	This equipment is intended to be used in applications where ingress of water is not regarded possible. The equipment is non-protected according to IEC 60529.	—
	IP-classification (IEC 60529) (IP)	Minimum IP 20	—

1.2.01	**EQUIPMENT ELECTRICAL RATINGS**		—
1.2.01.01	- 1.2.01.02 Rated voltage / voltage range as declared by the manufacturer	The manufacturer has not declared other input voltage than the operational one, see Sub-clause 1.7.01	—
1.2.01.03	Rated current as declared	The manufacturer has not declared other input current than the rated one, see Sub-clause 1.7.01	—
1.2.01.04	- 1.2.04.05 Rated frequency / frequency range	The manufacturer has not declared other input frequency than the rated one, see Sub-clause 1.7.01	—
1.2.02	**OPERATING CONDITIONS**		—
1.2.02.01	Normal load as described in Annex L or as close as possible to the most severe normal use	Normal Load: 24Vdc / 40 A	—
1.2.02.02	Rated operating time as assigned by the manufacturer	The manufacturer has not declared a rated operating time	—
1.2.02.03	- 1.2.02.05 Continuous operation / Short-time / Intermittent operation	The equipment is regarded to be for continuous operation.	—
1.2.03	**EQUIPMENT MOBILITY** The mass of the equipment (kg)	3.1 Kg	—

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1.2.03.01	- 1.2.03.03 Movable equipment / Hand-held equipment / Stationary equipment	None	—
1.2.03.04	- 1.2.03.06 Fixed equipment / Equipment for building-in / Direct plug-in equipment	Equipment for building-in	—
1.2.04	**CLASSES OF EQUIPMENT - PROTECTION AGAINST ELECTRIC SHOCK**		—
1.2.04.01	- 1.2.04.3 Class I, II or III equipment	Class I Equipment	—
1.2.05	**CONNECTION TO THE SUPPLY**		—
1.2.05.01	- 1.2.05.05 Type of connection to the supply	Permanently connected equipment.	—
1.2.08	**CIRCUITS AND CIRCUIT CHARACTERISTICS**	The equipment contains Primary circuits and Secondary circuits (SELV).	—
1.2.12	**POWER DISTRIBUTION**		—
	- 1.2.12.03 Tested for power system(s) type	TN, and IT for Norway. See Sub-clause 2.7.04.	—
	IT power system phase-to-phase voltage	Max. 575 Vac (three phase version).	—

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1.5.00	**COMPONENTS**		
1.5.01	Comply with IEC 60950 or relevant component standard	Ref. LIST OF CRITICAL COMPONENTS	
1.5.02	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950 and the relevant component standard. Components, for which no relevant IEC-standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950.	**P**
1.5.03	Transformers	Transformers used are suitable for their intended applications and comply with relevant parts of this standard and particularly Annex C, see ANNEX C - TRANSFORMERS	**P**
1.5.04	High voltage components Flammability class of high-voltage components operating at $U_{p-p} > 4$ kV	No high voltage components	**N**
1.5.05	Interconnecting cables	No interconnecting cables	**N**
1.5.06	Mains capacitors	X_2 cap. according to IEC 60384-14:1981, with pulse test	**P**

This is an extract of the CB-Scheme report with the most important information.
If a complete copy of the report is required, please contact your PULS sales representative.