

**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

Name and address of the applicant

Nom et adresse du demandeur

Name and address of the manufacturer

Nom et adresse du fabricant

Name and address of the factory

Nom et adresse de l'usine

Rating and principal characteristics

Valeurs nominales et caractéristiques principales

Trade mark (if any)

Marque de fabrique (si elle existe)

Model/type Ref.

Ref. de type

Additional information (if necessary)

Information complémentaire (si nécessaire)

**A sample of the product was tested and found
to be in conformity with**

*Un échantillon de ce produit a été essayé et a été
considéré conforme à la*

as shown in the Test Report Ref. No.

which forms part of this certificate

*comme indiqué dans le Rapport d'essais numéro
de référence*

qui constitue une partie de ce certificat

Power supply for building-in

PULS Elektronische Stromversorgung GmbH

Arabellastr. 15

D-81925 München

GERMANY

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6/2.8A 100-120/210-240V 50-60Hz, Cl. I

DC-output: max. 10A, 24-60V, max. 240W.

PULS

SL10.xxx

For explanation of the symbols "x", see page 2

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

200018215

This CB Test Certificate is issued by the National Certification Body

Ce Certificate d'essai OC est établi par l'Organisme National de Certification



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

Date

25 May 2000

Signature

**Lars Hjerpseth
Principal Engineer**

CB TEST CERTIFICATE

Ref. No. 9200

SL10.xxx

x stands for:

- I. Customer specific versions.
- II. For Models with different output voltages (for example 24 Vdc - 28 Vdc only)
- III. For Models with reduced output current and Power. For example the version SLR10.508 is a version with 200 W output power only. The reduction is achieved by modification of the primary current limitation.

Oslo, 25 May 2000

Issued by

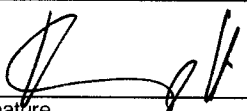
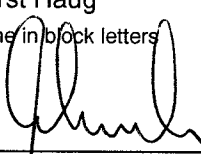
The Nemko logo consists of a stylized 'N' inside a circle, followed by the word 'Nemko' in a bold, sans-serif font.A handwritten signature in cursive script, reading 'Lars Hjerpseth'.

Lars Hjerpseth
Principal Engineer

Order No. EL/77.00/1713/0005

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 Arabellastraße 15 D-81925 München	
Name and address of the manufacturer	PULS Elektronische Stromversorgungen GmbH Arabellastraße 15 D-81925 München	
Name and address of the factory	PULS Elektronische Stromversorgungen GmbH Arabellastraße 15 D-81925 München	
Rating and principal characteristics	Input: 6 A / 2.8 A , 100-120/ 210-240 Vac (or alternatively 115/230) , 50-60 Hz Output : max 10 A , 24 - 60 Vdc, max 240 W,	
Trade mark	PULS	
Model/type	SLR10.xxx, SL10.xxx	
Serial no	Prototype.	
Tested according to	IEC 60950, 2nd Edition, 1991 + Amd. 1, 1992 + Amd. 2, 1993 + Amd. 3, 1995 + Amd. 4, 1996 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 Germany	Telephone (+49) 7240 63 0 Fax (+49) 7240 63 36
Tested by	 signature _____ date _____ Horst Haug name in block letters _____ May 19, 2000	
Verified by	 signature _____ date _____ Markus Petirsch name in block letters _____ May 19, 2000	

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Issue Nemko 98-09

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. (Refer to 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. (Refer to Appendix EMKO-TSE(74-SEC)207/94, confer countries indicated under additional information)
Other requirements	<p>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).</p> <p>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:</p> <p>Australia (including New Zealand) : CB Bulletin No. 94AI, March 1999</p> <p>Canada : CB Bulletin No. 94AI, March 1999</p> <p>Japan : CB Bulletin No. 94AI, March 1999</p> <p>Republic of Korea : CB Bulletin No. 94AI, March 1999</p> <p>Singapore : CB Bulletin No. 94AI, March 1999</p> <p>United States : CB Bulletin No. 94AI, March 1999</p>
<p>General remarks:</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>Possible test case verdicts:</p> <p>P = Pass, F = Fail, N = Not applicable. Placed in the column to the right (Verdict)</p>	

	SUMMARY OF TESTING :	
Clause	Information/Remarks	Comments
1.5, 3.2.04	Power supply cord set.	The Power Supply is a built-in product. The end product 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, refer to 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.
4.4.0	Fire enclosure	The product does not provide a fire enclosure.
5.4.6	Installation fuse opens during some fault condition tests.	Protection must be provided in the end product. The Power Supply is specified with a fuse 10 A time lag or less external. This requires special precaution for the end product.

	ADDITIONAL INFORMATION	
	DESCRIPTION OF EQUIPMENT UNDER TEST:	
	The Product is a built in Power Supply. (Switch mode).	
	<p>SL10R.xxx</p> <p>R stands for an additional diode in series to the output to achieve passive load sharing.</p> <p>SL10.xxx</p> <p>x stands for:</p> <ol style="list-style-type: none"> 1. Customer specific versions. 2. For Models with different output voltages (for example 24 Vdc - 28 Vdc only) 3. For Models with reduced output current and Power. For example the version SLR10.508 is a version with 200 W output power only. The reduction is achieved by modification of the primary current limitation. 	
	NAME AND ADDRESS OF PRODUCTION-SITES (FACTORIES):	
	Refer to page 1.	
	INFORMATION ABOUT THE STANDARDS / DOCUMENTS CONSIDERED :	
	Refer to page 1 and 2.	
	TESTED ACCORDING TO NATIONAL REQUIREMENTS FOR THE FOLLOWING COUNTRIES:	
	All Nordic and European Countries. This report may be used as basis for obtaining certification from any CB member including all CENELEC members.	
	LIST OF APPENDIXES / ENCLOSURES TO THE TEST REPORT :	
	Country Deviation Appendix's for Australia (including New Zealand), Canada, Japan, Republic of Korea, Singapore and the United States.	

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 SL10.xxx *.

ELECTRICAL RATING:

<u>Model</u>	<u>Input</u>			<u>Output. (dc)</u>	
	<u>V</u>	<u>A</u>	<u>Hz</u>	<u>V</u>	<u>W</u>
SL10.xxx*	115/230	6.0/2.8	50/60	24-48	240
SLR10.xxx*					

Instead of 115/230V V a.c. the rating 100-120/220-240 V a.c. is also acceptable.

* x stands for customer specific versions.

The equipment is:

for building in, Class I (earthed), intended for use on TN and IT power systems.

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. The outputs of units rated 24 - 28 Vdc, 8 A are non hazardous energy (< 240 VA).
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 IEC950:A4 and also to 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.

The test results have to be documented with the serial number, model number, date and result. This information has to be stored for 10 years and has to be available to the European authorities.

Photos:

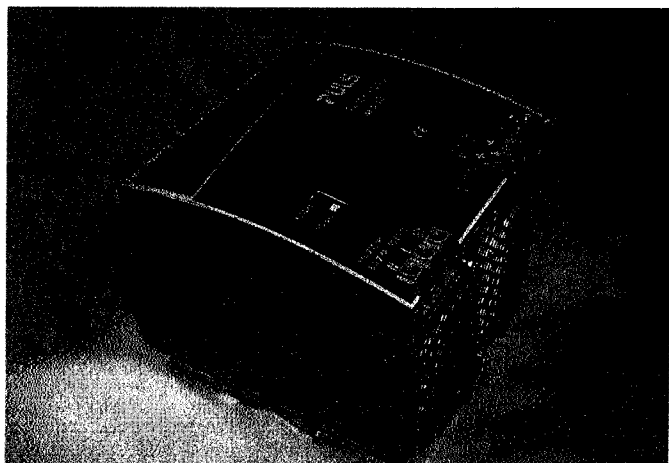


photo 1 description

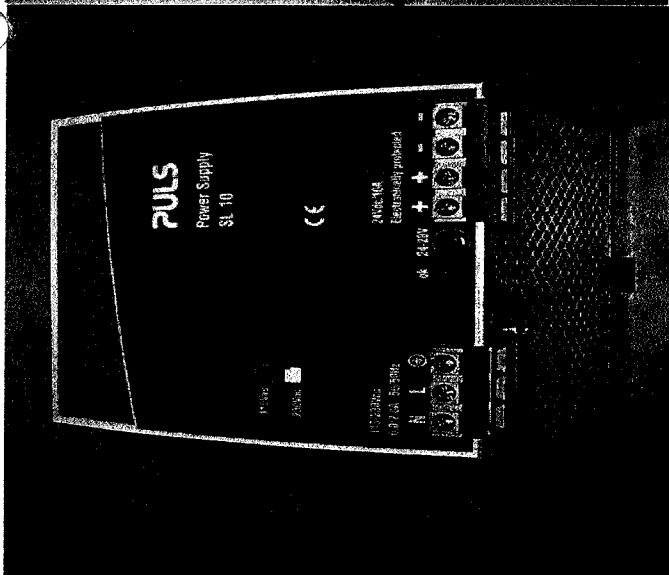


photo 2 description

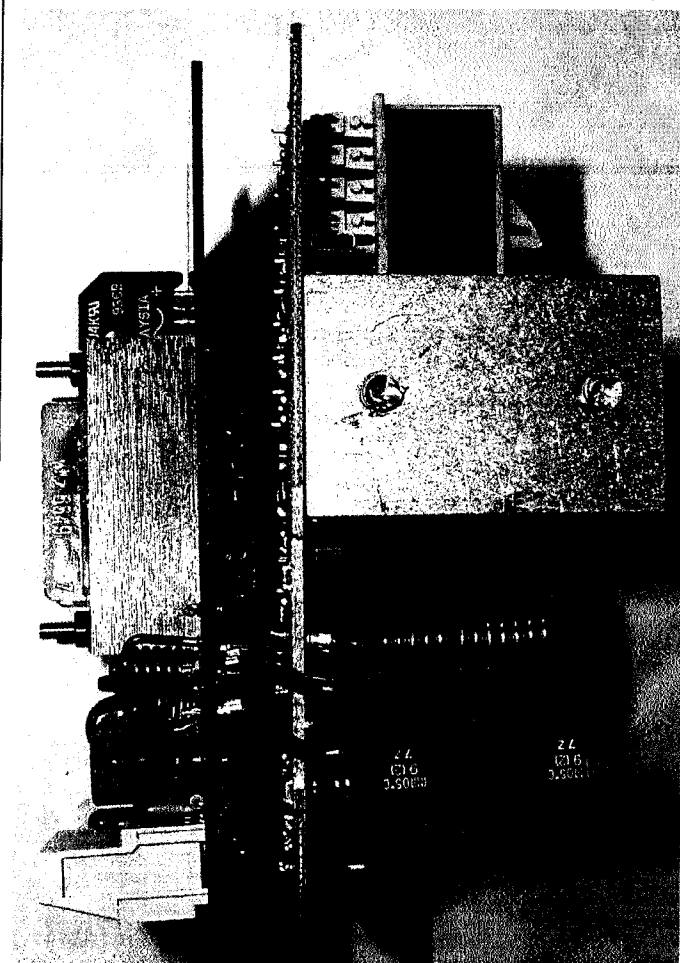


photo 4 description

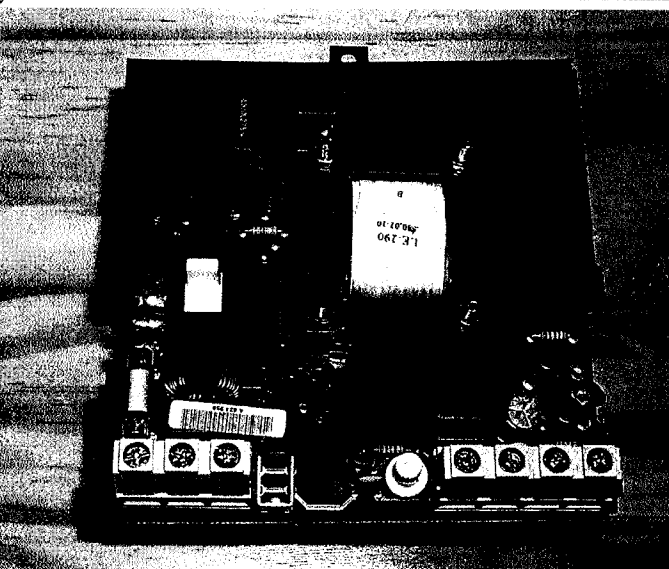


photo 3 description

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). Maximum recommended ambient temperature (T_{MRA}) as stated by the manufacturer is 60°C.	—
	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). Maximum recommended ambient temperature (T_{MRA}) as stated by the manufacturer is 60°C.	—
	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 rated one, refer to 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, refer to 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, refer to 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 as rated.	—
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)	1 kg.	—

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	The unit is for built in use. The type of connection to the mains source has to be determined with the end Product.	—
1.2.08	CIRCUITS AND CIRCUIT CHARACTERISTICS	The equipment contains Primary circuits, Secondary circuits (SELV) and Hazardous Energy Level.	—
1.2.12	POWER DISTRIBUTION		—
	- 1.2.12.03 Tested for power system(s) type	TN power system and IT power system for Norway. Refer to Sub-clause 2.7.04.	—
	IT power system phase-to-phase voltage	100 - 120 / 210 - 240 V. or alternatively 115/230 V. Refer to page 1 for input rating.	—
1.5.00	COMPONENTS		P
1.5.01	Comply with IEC 60950 or relevant component standard	Refer to LIST OF CRITICAL COMPONENTS.	P
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, refer to 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.	P
1.5.05	Interconnecting cables	No interconnecting cables.	P
1.5.06	Mains capacitors	X2 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.*