



Operating Instructions

Power supply type DSPq-120-24-block

R. STAHL HMI Systems GmbH, Cologne
Im Gewerbegebiet Pesch 14
50767 Köln

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1 Preface

These Operating Instructions contain all aspects relevant to explosion protection for the DSPq-120-24-block power supply. They also contain information on the connection and installation (etc.) of these devices. Please also refer to additional documentation, such as the EC type examination certificate and the hardware manual, which contain further important information.



For the correct operation of all associated components please note, in addition to these operating instructions, all other operating instructions enclosed in this delivery as well as the operating instructions of the additional equipment to be connected.

2 Device function

The purpose of the DSPq-120-24-block devices is to supply R. STAHL HMI Systems GmbH's operator interfaces with 230 VAC power. As an alternative, the DSPq-120-24-block power supply can be used with any other device that meets the technical requirements.

On the input side, the DSPq-120-24-block devices are supplied with 90 - 253 VAC or 120 - 250 VDC, and on the output side, 24 VDC are available.

The DSPq-120-24-block power supply is intended for installation in hazardous areas and has protection types "q" (powder filling) for explosion hazards. The devices are therefore explosion-proof equipment for installation in hazardous areas of zones 1 and 2.

3 Conformity to standards

The DSPq-120-24-block power supplies comply with the following standards and directive:

Standard	Classification
Directive 94/9/EC	
Original certificate	
IEC 60079-0 : 2011	
IEC 60079-5 : 2007	General requirements
IEC 60079-31 : 2008	Protection via powder filling "q"
Dust explosion protection by enclosure "t"	
Electromagnetic compatibility	
Directive 2004/108/EC	
EN 55022	Radio disturbance characteristics
EN 55024	Immunity
IEC 61000-3-2 : 2011	Limits

4 Certificates

The DSPq-120-24-block power supplies are certified for installation in the following areas:
according to ATEX Directive 94/9/EC
for installation in zones 1 and 2

IECEX (International Electrotechnical Commission System for Certification to Standards for Electrical Equipment for Explosive Atmospheres)

4.1 ATEX

The ATEX certificate is listed under the following certification number:

Certificate number: BVS 12 ATEX E 080


4.2 IECEX

The IECEX certificate is listed under the following certification number:

Certificate number: IECEX BVS 12.0053

All IECEX certificates are listed on the IEC's official website under their certification number.
<http://iecex.iec.ch/iecex/iecexweb.nsf/welcome?openform>

5 Marking

Manufacturer	R. STAHL HMI Systems GmbH	
Type code	DSPq-120-24-block	
CE classification:	CE 0158	
Testing authority and certificate number:	BVS 12 ATEX E 080 IECEX BVS 12.0053	
Ex classification:		
ATEX direction 94/9/EC		II 2 G Ex q IIC T4 Gb
IECEX		Ex q IIC T4 Gb

6 Power supply

6.1 Input values

U_{in} :	90 - 253 VAC / 47 - 63 Hz	
	120 - 250 VDC	
I_{in} :	3 A (at 115 VAC)	at 5 A load
	1.5 A (at 230 VAC)	at 5 A load

6.2 Output values

U_{max} :	24 VDC (+/- 5%)
I_{max} :	5 ADC

7 Ambient conditions

7.1 Temperature range

The ambient temperature range is $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ at any installation position.

7.2 Type of protection

IP54

8 Safety Advice

This chapter is a summary of the key safety measures. The summary is supplementary to existing rules which staff also have to study.

The safety of persons and equipment in hazardous areas depends on compliance with all relevant safety regulations. Thus, the installation and maintenance staff carry a particular responsibility, requiring precise knowledge of the applicable regulations and conditions.

8.1 Installation and operation

Please note the following when installing and operating the device:

- The national regulations for installation and assembly apply (e.g. EN 60079-14).
- The DSPq-120-24-block power supplies may be installed in zones 1 and 2.
- If the DSPq-120-24-block is damaged, the device must no longer be operated !
- Appropriated Switch boxes or connection compartments must marked with:
"Before opening appropriated switch boxes or connection compartments of the ReaderBox isolate all non intrinsically safe circuits and wait 25 minutes ! "
- The equipotential bonding connector of the device must be connected to the equipotential bonding conductor of the hazardous area. The earthing cable must have a minimum cross section of 4 mm² and be fitted with a suitable cable lug.
- The cables must be arranged in such a way that there will be no static charges that may result in a propagating brush discharge.
- National safety and accident prevention rules.
- Generally accepted technical rules.
- Safety instructions contained in these operating instructions.
- Any damage may compromise the explosion protection.

Use the DSPq-120-24-block power supply for its intended purpose only (see "device function"). Incorrect or unauthorized use and non-compliance with the instructions in this manual will void any warranty on our part.

No changes to the DSPq-120-24-block power supply are permitted.

The DSPq-120-24-block power supply may only be installed and operated in an undamaged, dry and clean condition !

8.2 Caution

"Do not open ! This device has been permanently sealed and cannot be repaired."

"Isolate supply and all Ex e and Ex i circuits, wait 25 minutes before opening switch boxes or connection compartments ! "

9 Assembly and disassembly

9.1 General information

Assembly and disassembly are subject to general technical rules. Additional, specific safety regulations apply to electronic and pneumatic installations. In Germany, for example, these include the BGI 547 (Information on and principles of workplace safety and health issued by the Government Safety Association) and the BetrSichVer (Betriebsicherheitsverordnung - Occupational Safety and Health).

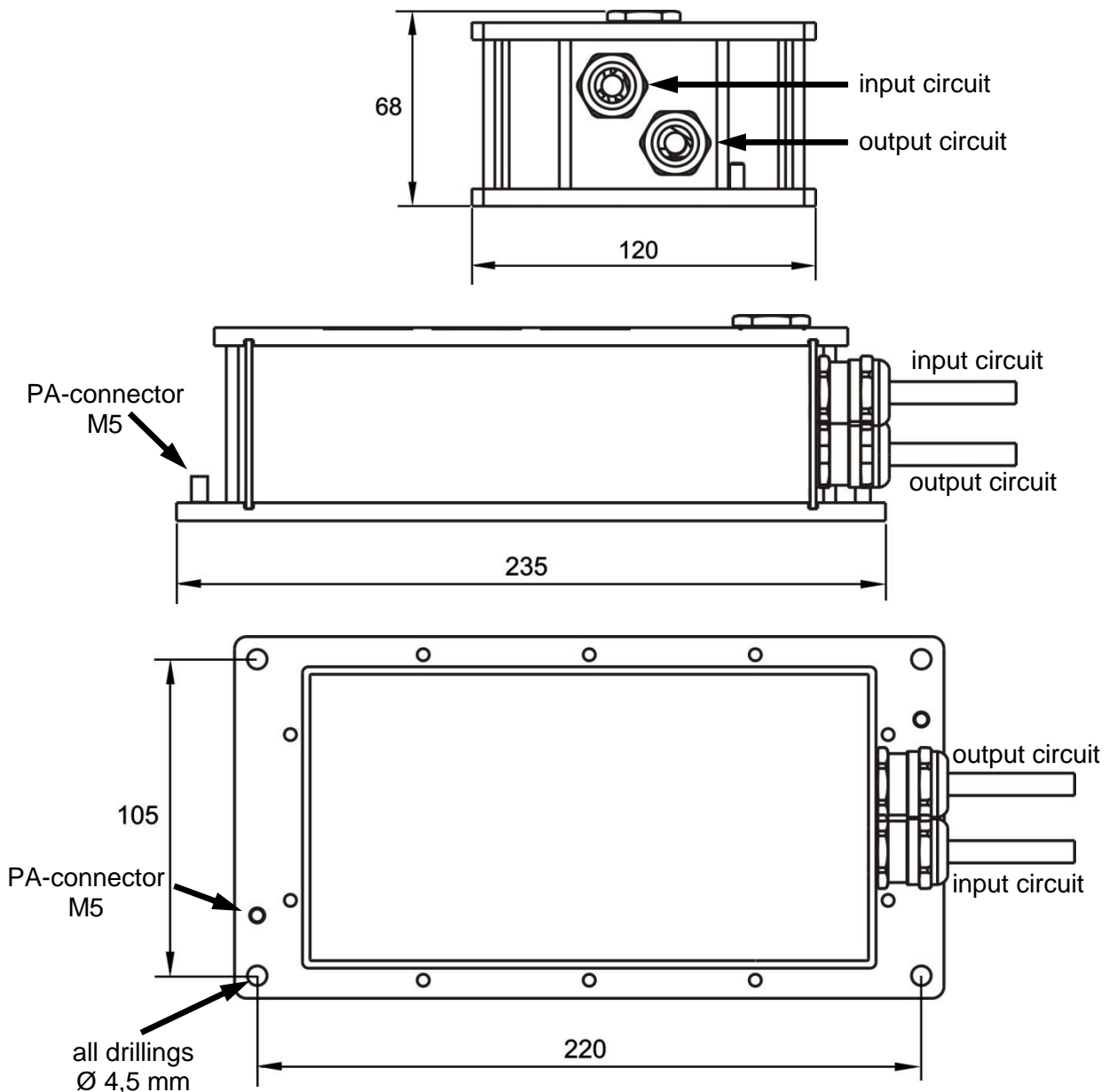
The DSPq-120-24-block power supply may be installed and operated in any position.

☞ Please note that the mounting space to be reserved must be larger than these dimensions, since a certain space is also required for the input cables.

9.2 Mechanical dimensions

Dimensions in mm

235 x 120 x 68 (L x W x H), without cable and cable glands



10 Operation

10.1 General information

When operating the devices, particular care shall be taken that:


- The DSPq-120-24-block has been properly installed according to instructions.
- the DSPq-120-24-block is not damaged
- all connection cables are properly connected and arranged in such a way that there will be no static charges that may result in a propagating brush discharge.

10.2 Connections DSPq-120-24-block

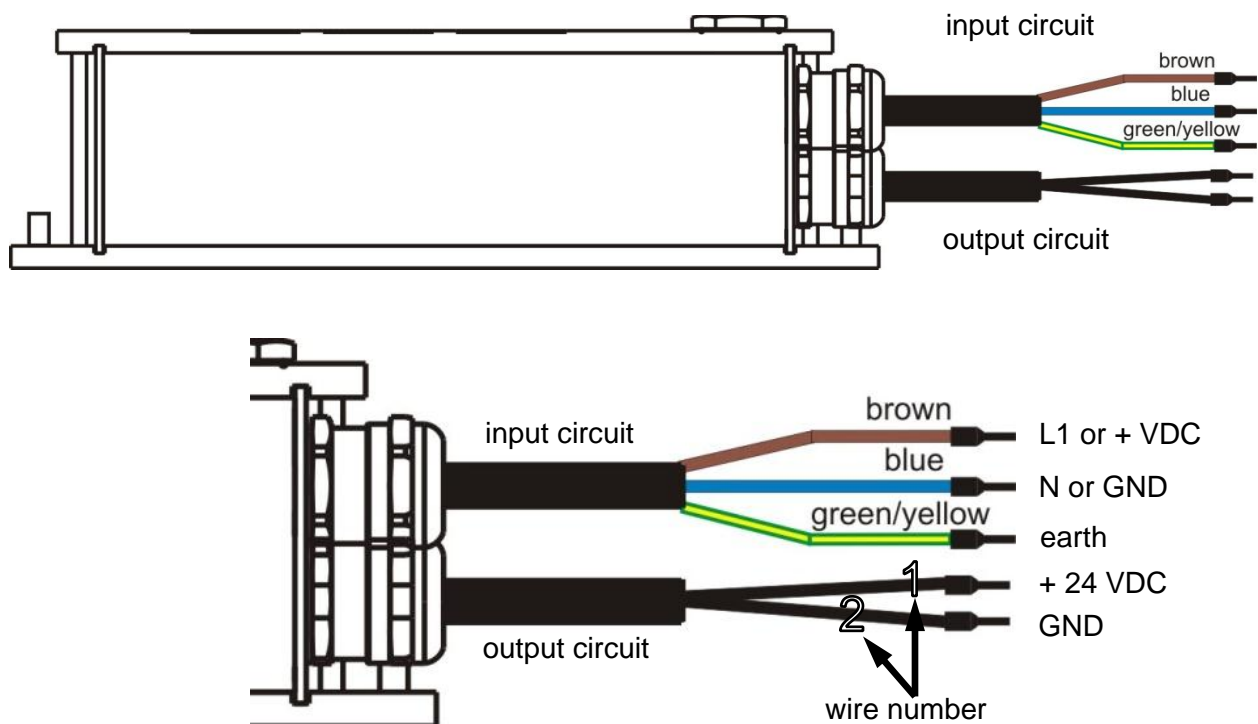
The DSPq-120-24-block devices are fitted with two fixed connection cables.

The input circuit is connected via a 3 x 1 mm² and the output circuit is connected via a 2 x 1.5 mm² cable.

Both cables must be connected to a suitable, separate terminal box.

 Both connection cables must be positioned in such a way that there is no electrostatic charge which may result in a propagating brush discharge.

Overview:



10.2.1 Input circuit

☞ The input circuit cable is 2 metres long !

Cable	Colour	Signal name	Definition
1	Brown	L1 or + VDC	Power supply input
2	Blue	N or GND	Power supply input
PE	Green/yellow	Earth	Protective earth

10.2.2 Output circuit

☞ The output circuit cable is 2 metres long !

Cable	Colour	Signal name	Definition
1	Black	+ 24 VDC	Power supply output
2	Black	GND	Power supply output

10.2.3 Connection of power supply to operator interface

Operator interface X1 (supply 24 VDC) Terminals		Power supply cable DSPq-120-24-block Output circuit open end/cables	
1	+24 VDC	Black	+24 VDC
3	GND	Black	GND
Equipotential bonding rail	PA	Green/yellow	Earth

11 Maintenance, service

Associated equipment is subject to maintenance, service and testing according to guidelines 1999/92/EC, IEC 60079-19, EN 60079-17 and BetrSichVer (Betriebssicherheitsverordnung - Occupational Safety and Health) !

Because the transmission of the devices remains reliable and stable over long periods of time, regular adjustments are not required.

Maintenance should focus on the following:

- Seal wear
- Housing damage
- All seals at screws unbroken
- All cables and lines are undamaged

11.1.1 Servicing

It is the responsibility of the operator of an electrical plant in a hazardous environment to have the plant serviced. Please also note the relevant national rules and regulations.

12 Troubleshooting

Users cannot carry out any repairs on the DSPq-120-24-block power supply.

13 Disposal

Disposal of packaging and used parts is subject to regulations valid in whichever country the device has been installed.

The disposal of devices sold after August 13th, 2005, and installed in countries under the jurisdiction of the EU is governed by directive 2002/96/EC on waste electrical and electronic equipment (WEEE). Under this directive, the devices are listed in category 9 (monitoring and control instruments).

We shall take back our devices according to our General Terms and Conditions.

13.1.1 ROHS directive 2002/95/EC

The prohibition of hazardous substances as detailed in directive 2002/95/EC (ROHS) does not apply to electronic equipment of categories 8 and 9, and is therefore not applicable to the equipment described in these operating instructions.

14 Declaration of EC conformity

EG-Konformitätserklärung
EC-Declaration of Conformity
Déclaration de Conformité CE



R. STAHL HMI Systems GmbH • Im Gewerbegebiet Pesch 14 • 50767 Köln, Germany
 erklärt in alleiniger Verantwortung, *declares in its sole responsibility, déclare sous sa seule responsabilité,*

dass das Produkt
that the product
que le produit

Stromversorgung
Power Supply
Bloc d'alimentation

Typ, type, type:

DSPq-120-24-block

Kennzeichnung, marking, marquage:

II 2 G Ex q IIC T4 Gb

mit der EG-Baumusterprüfbescheinigung,
ausgestellt durch Benannte Stelle:
under EC-Type Examination Certificate,
issued by notified body:
avec Attestation d'examen CE de type,
exposé par organisme notifié:

BVS 12 ATEX E 080

DEKRA EXAM GmbH
 Dinnendahlstraße 9
 44809 Bochum
 Germany

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
which is the subject of this declaration, is in conformity with the following standards or normative documents
auquel cette déclaration se rapporte, est conforme aux normes ou aux documents normatifs suivants

Bestimmungen der Richtlinie <i>Terms of the directive</i> <i>Prescription de la directive</i>	Nummer sowie Ausgabedatum der Norm <i>Number and date of issue of the standard</i> <i>Numéro ainsi que date d'émission de la norme</i>
94/9/EG: ATEX-Richtlinie 94/9/EC: ATEX Directive 94/9/CE: Directive ATEX	IEC 60079-0:2011 IEC 60079-5:2007
2006/95/EG: Niederspannungs-Richtlinie 2006/95/EC: Low Voltage Directive 2006/95/CE: Directive Basse Tension	IEC/EN 60950-1
2004/108/EG: EMV-Richtlinie 2004/108/EC: EMC Directive 2004/108/CE: Directive CEM	EN 55022 EN 55024 IEC/EN 61000-3-2

Köln, 21.08.2012

Ort und Datum
Place and date
Lieu et date

Joachim Düren


J. Düren
 Technical Director

W. Bertges

W. Bertges
 Quality Manager

15 EC type examination certificate

15.1 ATEX



Translation

(1) EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) No. of EC-Type Examination Certificate: **BVS 12 ATEX E 080**

(4) Equipment: **Power supply type DSPq-120-24-block**

(5) Manufacturer: **R. STAHL HMI Systems GmbH**

(6) Address: **Im Gewerbegebiet Pesch 14, 50767 Köln, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 12.2106 EG.


(9) The Essential Health and Safety Requirements are assured by compliance with:


IEC 60079-0:2011 General requirements
EN 60079-5:2007 Powder Filling „q“

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

 **II 2G Ex q IIC T4 Gb** or

 **II 2G Ex qb IIC T4**

DEKRA EXAM GmbH
Bochum, dated 02.08.2012

Signed: Dr. Franz Eickhoff

Certification body

Signed: Stephan Ruhnau

Special services unit

Page 1 of 2 to BVS 12 ATEX E 080
This certificate may only be reproduced in its entirety and without change.
DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3596-105 Fax +49.234.3596-110 zs-exam@dekra.com



- (13) Appendix to
- (14) **EC-Type Examination Certificate**
BVS 12 ATEX E 080
- (15) 15.1 Subject and type
Power supply type DSPq-120-24-block

15.2 Description

The power supply consists of a separately tested enclosure and a PCB which is mounted on an inner frame. The PCB is equipped with fuses. The electronics is completely surrounded by filling material. After filling the enclosure is closed, permanently sealed and marked correspondingly.


15.3 Parameters

15.3.1	Electrical data		
	input		
	voltage	90... 253 120... 250	VAC / 47... 63 Hz VDC
	current	3 1.5	A (115 VAC) A (230 VAC)
	output		
	voltage	24	VDC (± 5%)
	current	5	ADC
15.3.2	Thermal data		
	permitted ambient temperature range		-25 °C ... +60 °C
	temperature class		T4
15.3.3	Degrees of protection according to EN 60529		IP54

- (16) Test and Assessment Report
BVS PP 12.2106 EG as of 02.08.2012
- (17) Special conditions for safe use
none

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 02.08.2012
BVS-Hk/Sch A 20120135




Certification body



Special services unit

15.2 IECEX

		<h2 style="margin: 0;">IECEX Certificate of Conformity</h2>	
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEX Scheme visit www.iecex.com</small></p>			
Certificate No.:	IECEX BVS 12.0053	Issue No.:	0
Status:	Current	Certificate history:	
Date of Issue:	2012-08-08	Page 1 of 3	
Applicant:	R. STAHL HMI Systems GmbH Im Gewerbegebiet Pesch 14 50767 Köln Germany		
Electrical Apparatus: Optional accessory:	Power supply DSPq-120-24-block		
Type of Protection:	Equipment protection by powder filling "q"		
Marking:	Ex q IIC T4 Gb OF Ex qb IIC T4		
Approved for issue on behalf of the IECEX Certification Body:	Dr.-Ing. Franz Eickhoff		
Position:	Deputy Head of Certification Body		
Signature: (for printed version)			
Date:	<u>2012-08-08</u>		
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEX Website.			
Certificate issued by:		 DEKRA DEKRA EXAM GmbH	
		DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany	



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 12.0053

Date of Issue: 2012-08-08

Issue No.: 0

Page 2 of 3

Manufacturer: **R. STAHL HMI Systems GmbH**
Im Gewerbegebiet Pesch 14
50767 Köln
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements

Edition: 8.0

IEC 60079-5 : 2007-03 Explosive atmospheres - Part 5: Equipment protection by powder filling "q"

Edition: 3

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/BVS/ExTR12.0056/00

Quality Assessment Report:

DE/BVS/QAR06.0007/05



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 12.0053

Date of Issue: 2012-08-08

Issue No.: 0

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description:

The power supply consists of a separately tested enclosure and a PCB which is mounted on an inner frame. The PCB is equipped with fuses. The electronics is completely surrounded by filling material. After filling the enclosure is closed, permanently sealed and marked correspondingly.

Rating:

Electrical data

input		
voltage	90	253 VAC / 47 63 Hz
	120	250 VDC
current	3 A	(115 VAC)
	1.5 A	(230 VAC)
output		
voltage	24	VDC ($\pm 5\%$)
current	5	ADC

Thermal data

permitted ambient temperature range

- 25°C + 60°C

temperature class T4

Degree of protection according to EN 60529 IP54

CONDITIONS OF CERTIFICATION: NO

16 Release notes

Version 1.00.01

- Original version of the operating instructions

Version 1.00.02

- Changing time to 25 minutes for cautionary note

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