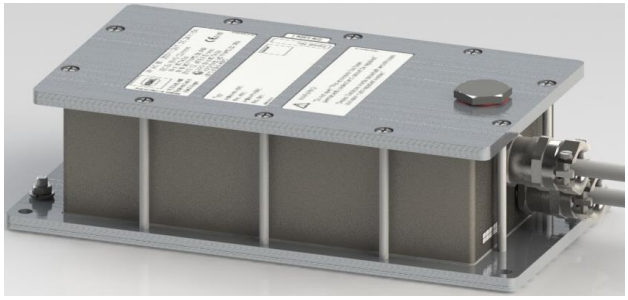


Operating Instructions

Power supply DSPq-120-24-block

STAHL

THE STRONGEST LINK.

Operating Instructions version: **01.00.06**
Issue date: **09.12.2024**

Disclaimer

Publisher and copyright holder:

R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D 50829 Cologne

Telephone:	(Sales Support)	+49 221 768 06	- 1200
	(Technical Support)		- 5000
Fax:			- 4200
E-mail:	(Sales Support)	sales.dehm@r-stahl.com	
	(Technical Support)	support.dehm@r-stahl.com	

Specific markings

The markings in these Operating Instructions refer to specific features that must be noted.

In detail, these are:

DANGER	This sign alerts users to hazards that **will** result in death or serious injury if ignored.
WARNING	This sign alerts users to hazards that **may** result in death or serious injury if ignored.
CAUTION	This sign alerts users to hazards that may damage machinery or equipment or result in injury if ignored.
ATTENTION	Information highlighted by this symbol indicates measures for the prevention of damage to machinery or equipment.
NOTICE	Information highlighted by this symbol indicates important information of which particular note should be taken.
DOCUMENTATION	Information highlighted by this symbol (with and without lettering) refers to a different chapter or section in this manual or other documentation or a web-page.

Warnings

	Caution ! The power supply surface may heat up at ambient temperatures higher than 45 °C ! Caution at contact !

Table of contents

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.

NOTICE	All data relevant to explosion protection was copied to these Operating Instructions from the EC type examination certificate.
	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.

DOCUMENTATION	All certificates for the devices are contained in the document entitled CE_DSPq, which is not part of the delivery. You can find this document online at www.r-stahl.com or request a copy from R. STAHL HMI Systems GmbH.

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 Technical data

Function / Equipment	DSPq-120-24-block
Explosion Protection	
Application range (zones)	1, 2
Electrical Data	
Input voltage range AC	90 – 253 V
Input voltage range DC	120 – 250 V
Power consumption AC 1	3 A (at 115 VAC) at 5 A load
Power consumption AC 2	1.5 A (at 230 VAC) at 5 A load
Frequency range	47 – 63 Hz
Output voltage	24 VDC (+/- 5%)
Output current	max. 5 A
Ambient Conditions	
Ambient temperature operation	-25 °C … +60 °C
Mechanical Data	
Ingress protection	IP54
Enclosure	Aluminium
Dimensions (WxHxD)	120 mm x 235 mm x 68 mm
Mounting position	any position
Weight	3.33 kg

4 Conformity to standards

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

Standard **Directive 2014/34/EU** **Original certificate**	**Classification**
IEC 60079-0 : 2011	General requirements
IEC 60079-5 : 2007	Protection via powder filling "q"
The product corresponds to requirements from:	
EN IEC 60079-0 : 2018	General requirements
DIN EN 60079-5 : 2015	Protection via powder filling "q"
Electromagnetic compatibility	
Directive 2014/30/EU	**Classification**
EN 61000-6-2 : 2005 + AC : 2005	Interference resistance
EN 61000-6-4 : 2007 + A1 : 2011	Interference emission
Low voltage directive	
2014/35/EU	**Classification**
DIN EN 62368-1 : 2016	Audio/video-, information and communication technology equipment - Safety requirements
RoHS directive	
2011/65/EU	**Classification**
EN IEC 63000 : 2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

5 Certificates

	Certificates: r-stahl.com
	The device has IECEx approval. See IECEx homepage: https://www.iecex-certs.com/#/home.

5.1 Approvals

The DSPq-120-24-block power supplies are approved for the following areas:

Synonym	Scope of validity	Valid until	Certificate number	Note
CE	Europe	unlimited		according to directive 2014/30/EU 2014/34/EU 2014/35/EU 2014/53/EU 2011/65/EU
ATEX	Europe	unlimited	BVS 12 ATEX E 080	Issue 00
IECEx	Global	unlimited	IECEx BVS 12.0053	Issue: 0

6 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	Ex	II 2 G Ex q IIC T4 Gb
IECEx		Ex q IIC T4 Gb

7 Power supply

7.1 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

7.2 Output values

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

I_{max}: 5 ADC

8 Safety Advice

NOTICE	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.

CAUTION	The notes listed below in section 8.1 must be heeded to avoid injury and damage to equipment !

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 Cautionary notes

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

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

9 Assembly and disassembly

9.1 General information

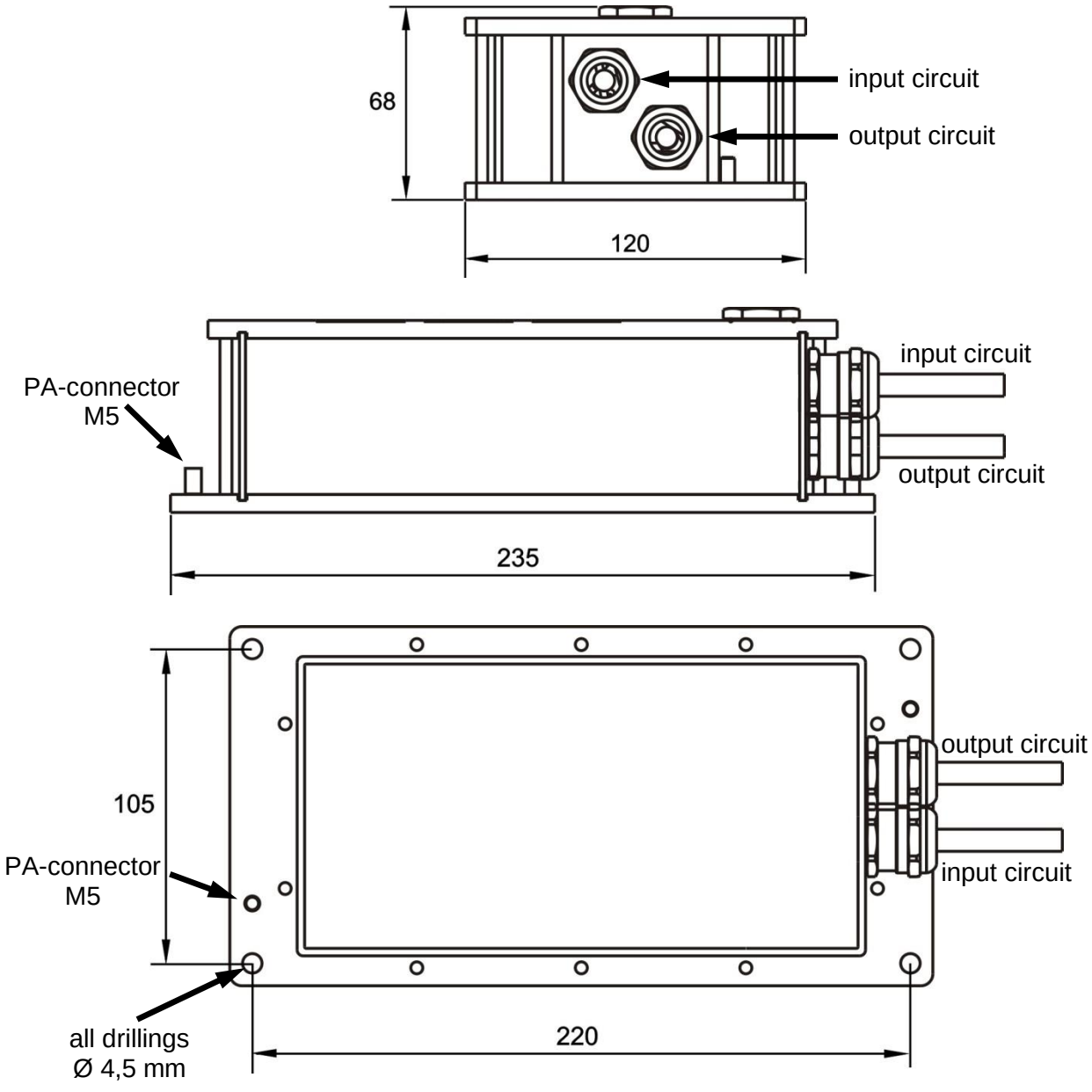
NOTICE	Assembly and disassembly are subject to general technical rules. Additional, specific safety regulations apply to electronic and pneumatic installations.

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

NOTICE	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

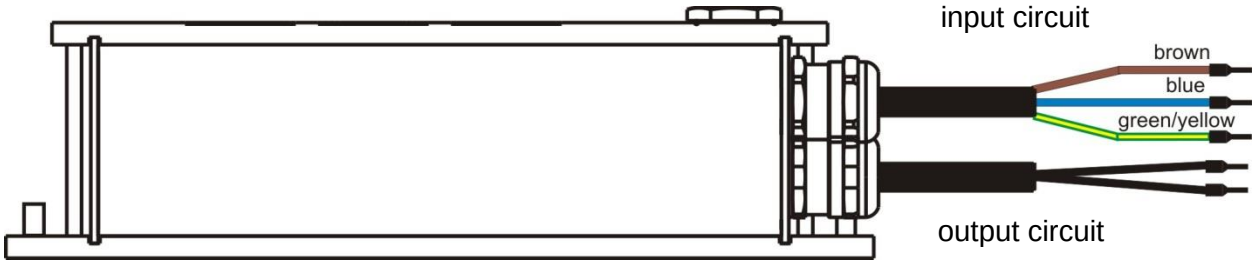
NOTICE	When operating the devices, particular care shall be taken that: • the DSPq-120-24-block has been properly installed according to instructions, • the DSPq-120-24-block is not damaged, • all connection cables are properly connected and arranged in such a way that there will be no static charges that may result in a propagating brush discharge.

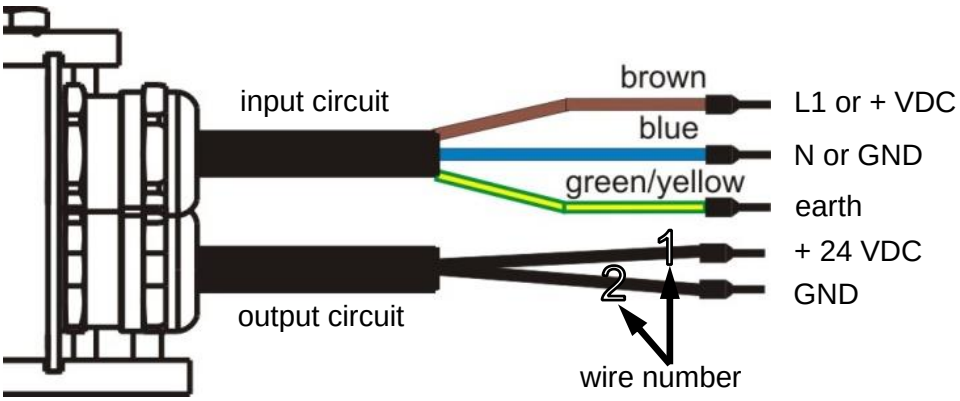
10.2 Connections DSPq-120-24-block

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.

CAUTION	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

NOTICE	The input circuit cable is 2 metres long !

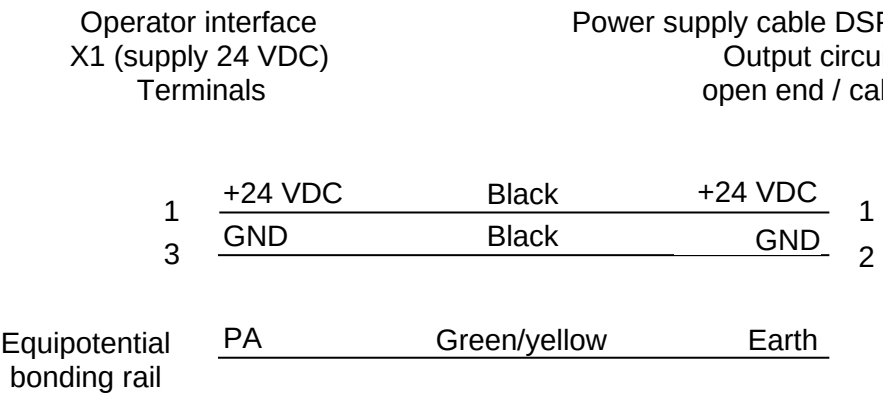
Cable	Colour	Signal name	Definition
1	Brown	L1 or + VDC	Power supply input
2	Blue	N or GND	Power supply input
PE	Green / yellow	Earth	Protective earth

10.2.2 Output circuit

NOTICE	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



11 Maintenance, service

NOTICE	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

CAUTION	If the device in its factory state is damaged or altered in any way, decommission it immediately and contact the manufacturer !

11.1 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 / restricted substances

Disposal of old electric and electronic devices, packaging and used parts is subject to regulations valid in whichever country the device has been installed.
For countries under the jurisdiction of the EU the corresponding WEEE directive applies.

The power supply devices are classified according to the table below:

Directive	WEEE II Directive 2012/19/EU
Valid	from 2018-08-15
Category	SG5 small devices <50 cm

R. STAHL HMI Systems GmbH meets the requirements of directive 2012/19/EU (WEEE) and is registered under the number DE 15180083.

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

13.1 RoHS directive 2011/65/EU

The power supplies meet the requirements of RoHS Directive 2011/65/EU.

14 EU Declaration of conformity

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE

STAHL

R. STAHL HMI Systems GmbH • Adolf-Grimme-Allee 8 • 50829 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(en), *type(s), type(s):*	**DSPq-120-24-block**

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / *Directive(s) / Directive(s)*	Norm(en) / *Standard(s) / Norme(s)*	
ATEX-Richtlinie 2014/34/EU *ATEX Directive 2014/34/EU* *Directive ATEX 2014/34/UE*	IEC 60079-0:2011 EN 60079-5:2007	Das Produkt entspricht Anforderungen aus: *Product corresponds to requirements from:* *Produit correspond aux exigences:* EN IEC 60079-0:2018 DIN EN 60079-5:2015
Kennzeichnung, *marking, marquage:*	**II 2G Ex q IIC T4 Gb** CE 0158	
EU-Baumusterprüfbescheinigung: *EU Type Examination Certificate:* *Attestation d'examen UE de type:*	**BVS 12 ATEX E 080** **DEKRA EXAM GmbH (NB 0158)** Dinnendahlstraße 9, 44809 Bochum, Germany	
EMV-Richtlinie 2014/30/EU *EMC Directive 2014/30/EU* *Directive CEM 2014/30/UE*	EN 61000-6-2:2005 + AC:2005 EN 61000-6-4:2007 + A1:2011	
Produktnormen nach Niederspannungsrichtlinie: *Product standards according to Low Voltage Directive:* *Normes des produit pour la Directive Basse Tension:*	DIN EN 62368-1:2016	
Produktnormen nach RoHS-Richtlinie (2011/65/EU): *Product standards according to RoHS Directive:* *Normes des produit pour la Directive RoHS:*	EN IEC 63000:2018	

Für spezifische Merkmale und Bedingungen siehe Betriebsanleitung.
For specific characteristics and conditions see operating instructions.
Pour les caractéristiques et conditions spécifiques, voir le mode d'emploi.

Köln, 2020-12-16	i.V. Joachim Düren	i.V. A. Jung
Ort und Datum *Place and date* *Lieu et date*	**J. Düren** Technical Director	**A. Jung** Ex Representative

201550700131 Konformitätserklärung DSPq-120-24-block.docx Template_ EGEU_Konf_20150720.docx, Page 1 / 1

15 Release notes

This chapter lists the changes made in the most recent versions of these Operating Instructions.

Version 1.00.01

- Original version of the operating instructions

Version 1.00.02

- Changing time to 25 minutes for cautionary note

Version 1.00.03

- Changing Conformity to standards
- Addition warning surface temperature
- Adaption section "RoHS directive" with device conformity
- Renew declaration of EC conformity
- Layout and formal corrections

Version 01.00.04

- Inclusion of chapter "specific markings"
- Changing of all markings according to the new definition
- All certificates transfered into seperate document
- Changing link address into "r-stahl.com"
- Rebuilt section certificates, splitting into countries
- Addition of EAC (TR) certification
- Adaption of section "Disposal" according to the current WEEE and RoHS directive
- Addition of section "Technical Data"
- Layout and formal corrections

Version 01.00.05

- Changing Disclaimer
- Addition of "textbox caution" in section "Maintenance, overhaul" with information according to "decommission the device"

Version 01.00.06

- OI adaptation to current design
- Correction of phone and fax no.
- Removal of reference to "Online Manual" in "Preface"
- Removal of "Explosion protection values in "Technical data"
- Update section "Conformity to standards"
- Conversion and update of section "Certificates"
- Removal of all data according to "EAC (TR) certification"
- Update section "Disposal"
- Renew "Declaration of conformity"
- Changing text (with and without lettering) according to documentation note in "Specific markings"
- Formal changes

R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D 50829 Köln

T: (Sales Support) +49 221 768 06 - 1200
(Technical Support) +49 221 768 06 - 5000
F: +49 221 768 06 - 4200
E: (Sales Support) sales.dehm@r-stahl.com
(Technical Support) support.dehm@r-stahl.com

r-stahl.com