# Operating Instructions

## Power supply type DSPq-120-24-block

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

**Version** **01.00.05**
**Issue date:** **15.01.2019**

# Disclaimer

Publisher and copyright holder:

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

| | | | |
|---|---|---|---|
| Phone: | (switchboard) | +49 (0) 221 76 806 | - 1000 |
| | (hotline) | | - 5000 |
| Fax: | | | - 4100 |
| E-mail: | (switchboard) | office@stahl-hmi.de | |
| | (hotline) | support@stahl-hmi.de | |

# Formatting conventions

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 refers to a different chapter or section in this manual or other documentation or a web-page. |

## Warnings

| | |
|---|---|
|  | Caution !<br>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.<br>You can find this document online at www.r-stahl.com or request a copy from R. STAHL HMI Systems GmbH. |
| | More detailed information on the devices can be found in the Manual (online at www.r-stahl.com ). |

# 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 |
| Certifications | ATEX, IECEx, EAC |
| Certification IECEx | IECEx BVS 12.0053 |
| Certification ATEX | BVS 12 ATEX E 080 |
| Certification EAC | ТС RU C-DE.ГБ04.В.00714 |
| Gas explosion protection IECEx | Ex q IIC T4 Gb |
| Gas explosion protection ATEX | II 2 G Ex q IIC T4 Gb |
| Gas explosion protection EAC | 1Ex q IIC T4 Gb X |
| **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** | **Classification** |
|---|---|
| **Directive 2014/34/EU** | |
| **Original certificate** | |
| IEC 60079-0 : 2011 | General requirements |
| IEC 60079-5 : 2007 | Protection via powder filling "q" |
| **Electromagnetic compatibility** | |
| **Directive 2014/30/EU** | |
| EN 55022 | Radio disturbance characteristics |
| EN 55024 | Immunity |
| IEC 61000-3-2 : 2011 | Limits |

# 5 Certificates

The DSPq-120-24-block power supplies are certified for installation in the following areas:

according to ATEX Directive 2014/34/EU
for installation in zones 1 and 2

IECEx (International Electrotechnical Commision System for Certification to Standards for Electrical Equipment for Explosive Atmospheres)

Russia / Kazakhstan / Belarus:

EAC (TR) (Technical Regulation of the Eurasian Customs Union)

## 5.1 ATEX

The ATEX certificate is listed under the following certification number:

Certificate number: BVS 12 ATEX E 080

## 5.2 IECEx

The IECEx certificate is listed under the following certification number:

Certificate number: IECEx BVS 12.0053

| | |
|---|---|
| DOCUMENTATION | You can access all IECEx certificates on the official website of the IEC under their certificate number. http://iecex.iec.ch/iecex/iecexweb.nsf/welcome?openform |

## 5.3 EAC (TR)

The EAC (TR) certification is listed under the following certificate number:

Certificate number: TC RU C-DE.ГБ04.B.00714

# 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<br>IECEx BVS 12.0053 | |
| Ex classification: | | |
| ATEX directive | Ex | II 2 G Ex q IIC T4 Gb |
| IECEx | | Ex q IIC T4 Gb |
| EAC (TR) | | 1Ex q IIC T4 Gb X |

# 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 !<br>This device has been permanently sealed and cannot be repaired. |

# 9 Assembly and disassembly

## 9.1 General information

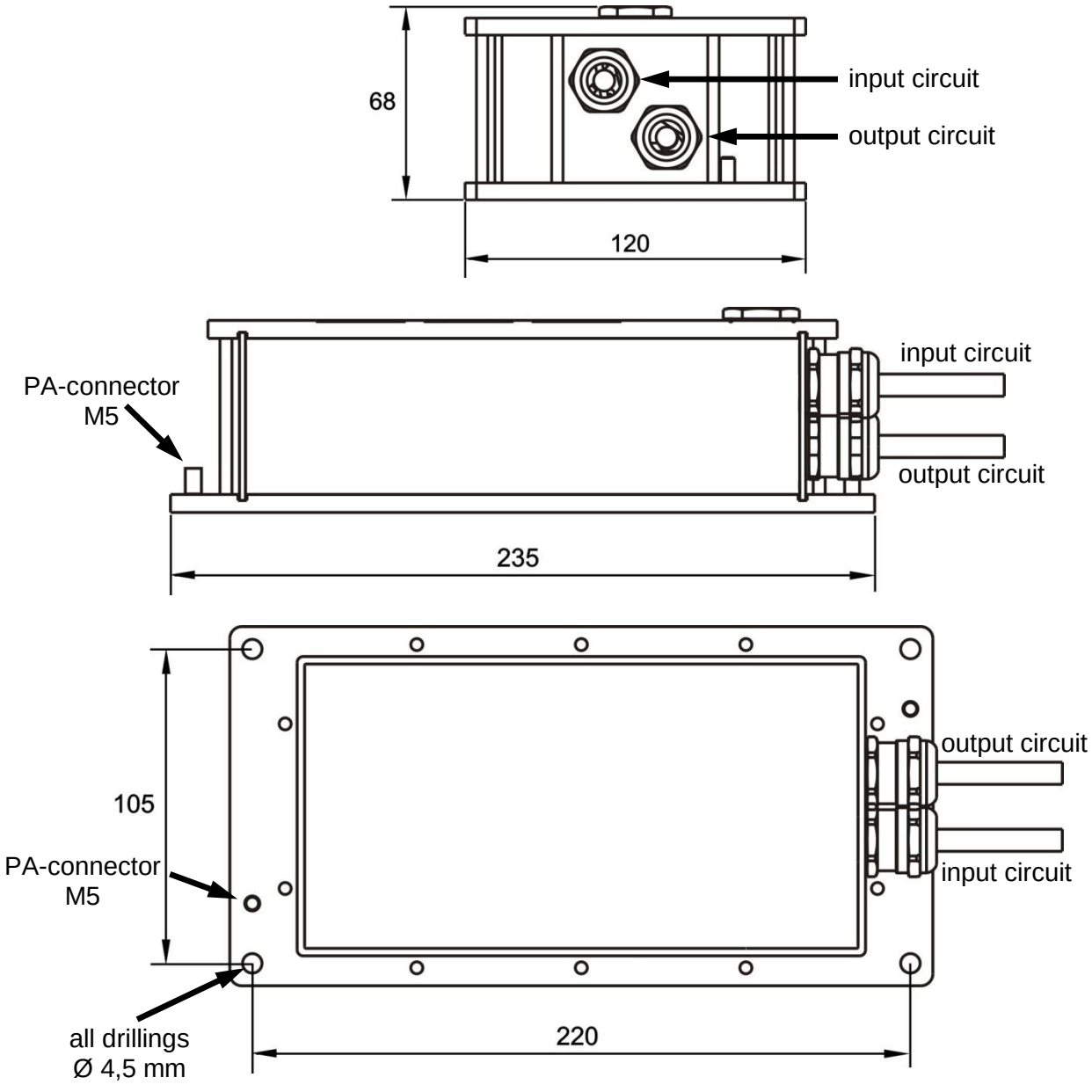
| | |
|---|---|
| NOTICE | Assembly and disassembly are subject to general technical rules. Additional, specific safety regulations apply to electronic and pneumatic installations. |

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

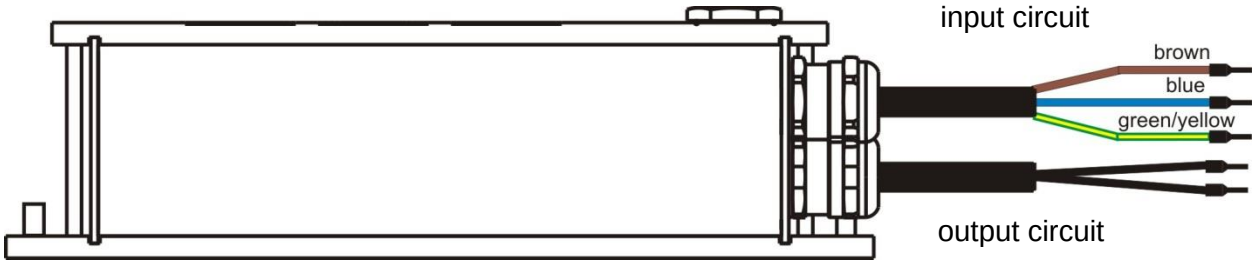
| | |
|---|---|
| NOTICE | When operating the devices, particular care shall be taken that:<br>• the DSPq-120-24-block has been properly installed according to instructions,<br>• the DSPq-120-24-block is not damaged,<br>• all connection cables are properly connected and arranged in such a way that there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

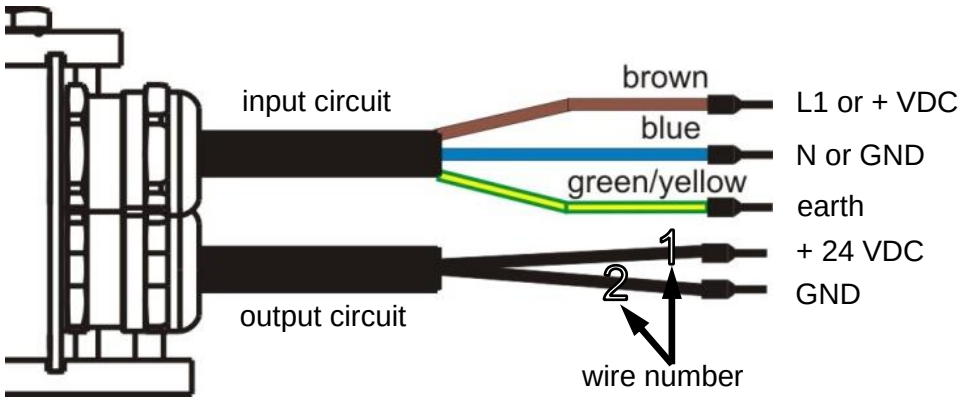
## 10.2 Connections DSPq-120-24-block

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 ! |
|---|---|

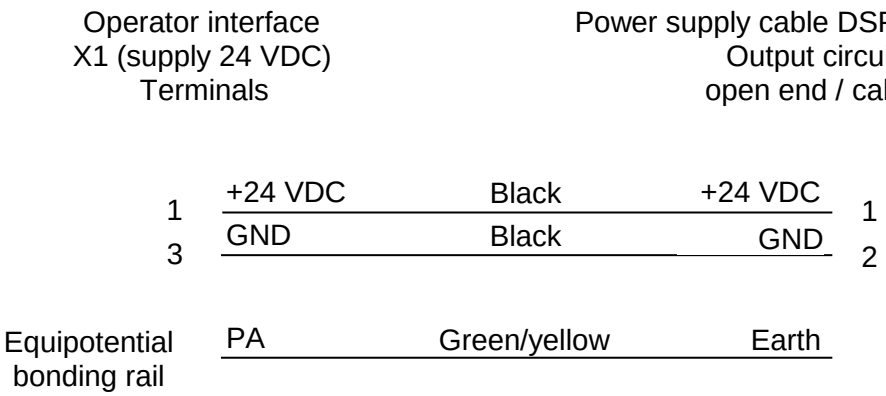
| Cable | Colour | Signal name | Definition |
|---|---|---|---|
| 1 | Brown | L1 or + VDC | Power supply input |
| 2 | Blue | N or GND | Power supply input |
| PE | Green/yellow | Earth | Protective earth |

### 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

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:

| | old | new |
|---|---|---|
| Directive | WEEE I Directive 2002/96/EC | WEEE II Directive 2012/19/EU |
| Valid | until 14.08.2018 | from 15.08.2018 |
| Category | 9<br>Monitoring and control devices | SG5<br>Small equipment >50 cm |

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

## 13.1 RoHS directive 2011/65/EC

The revised version of the RoHS (restriction of hazardous substances) 2002/95/EC directive, directive 2011/65/EC, extends its area of application to all electric and electronic products.

The power supplies are conform with the requirements from RoHS directive 2011/65/EU, dated 03.01.2013.

# 14 Declaration of EC conformity

## EG/EU-Konformitätserklärung
*EC/EU Declaration of Conformity*
*Déclaration de Conformité CE/UE*

**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:**<br>*that the product:*<br>*que le produit:* | **Stromversorgung**<br>*Power Supply*<br>*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)* | |
|---|---|---|---|---|
| **Bis/*Until/Jusque'au*<br>2016-04-19:** | | **Ab/*From/De*<br>2016-04-20:** | IEC 60079-0:2011<br>EN 60079-5 :2007 | Das Produkt entspricht Anforderungen aus:<br>*Product corresponds to requirements from:*<br>*Produit correspond aux exigences:*<br>IEC 60079-5: 2015 |
| **94/9/EG**<br>*94/9/EC*<br>*94/9/CE* | **ATEX-Richtlinie**<br>*ATEX Directive*<br>*Directive ATEX* | **2014/34/EU**<br>*2014/34/EU*<br>*2014/34/UE* | | |

**Kennzeichnung,** *marking, marquage:* **II 2G Ex q IIC T4 Gb**

CE 0158

**EG/EU-Baumusterprüfbescheinigung:**
*EC/EU Type Examination Certificate:*
*Attestation d'examen CE/UE de type:*

**BVS 12 ATEX E 080**

**DEKRA EXAM GmbH (NB 0158)**
Dinnendahlstraße 9, 44809 Bochum, Germany

| **Bis/*Until/Jusque'au*<br>2016-04-19:** | | **Ab/*From/De*<br>2016-04-20:** | IEC/EN 61000-3-2<br>EN 55022<br>EN 55024 |
|---|---|---|---|
| **2004/108/EG**<br>*2004/108/EC*<br>*2004/108/CE* | **EMV-Richtlinie**<br>*EMC Directive*<br>*Directive CEM* | **2014/30/EU**<br>*2014/30/EU*<br>*2014/30/UE* | |

| | |
|---|---|
| **Produktnormen nach Niederspannungsrichtlinie:**<br>*Product standards according to Low Voltage Directive:*<br>*Normes des produit pour la Directive Basse Tension:* | EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010 |
| **Produktnormen nach RoHS-Richtlinie (2011/65/EU):**<br>*Product standards according to RoHS Directive:*<br>*Normes des produit pour la Directive RoHS:* | EN 50581:2012 |

| | | |
|---|---|---|
| Köln, 2015-12-11 | i.V. Joachim Düren | i.V. W. Bertges |
| **Ort und Datum**<br>*Place and date*<br>*Lieu et date* | **J. Düren**<br>Technical Director | **W. Bertges**<br>Quality Manager |

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# 15 Release notes

The chapter entitled "Release Notes" contains all the changes made in every version of the 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"

 

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

| | | | |
|---|---|---|---|
| Phone: | (switchboard) | +49 (0) 221 76 806 | - 1000 |
| | (hotline) | | - 5000 |
| Fax: | | | - 4100 |
| E-mail: | (switchboard) | office@stahl-hmi.de | |
| | (hotline) | support@stahl-hmi.de | |

www.r-stahl.com
www.stahl-hmi.de