



Operating Instructions

USBi Drive

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Version 01.04.01
Issue: 23.08.2018

Disclaimer

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We reserve the right to change our products and their specifications at any time, provided it is in the interest of technical progress. The information in the current manual (in the internet and on CD / DVD / USB stick) or in the operating instructions included with the device applies.

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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 !
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 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 !
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Warnings



	<p style="text-align: center;">Caution !</p> <p>The device surface may heat up at ambient temperatures higher than 45 °C ! Caution at contact !</p>
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1 Preface

These operating instructions are intended for the safe installation of the USBi drives and cover all Ex-relevant aspects.

 NOTICE	All data relevant to explosion protection from the EC-type examination certificate were copied into these operating instructions.
	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	Please note that all certificates of the USBi drives can be found in a separate document (CE_USBi-Drive). You can find this document in the internet at www.r-stahl.com or request it from R. STAHL HMI Systems GmbH.
	For more information on the USBi drives please also refer to the Manual (available as online manual on www.r-stahl.com).

2 Device function

The USBi drives are explosion-protected equipment for installation in hazardous areas of zones 1, 2, 21 and 22. The devices may be connected to intrinsically safe and not intrinsically safe USB interfaces. Power supply and data communication takes place via the USB interface. Data may be saved to and read from the USBi drive.

3 Technical data

Function / Equipment	USBi-Drive-*
Operating voltage	5 VDC, via USB interface
Power consumption	
Idle mode	70 mA
Active mode	265 mA
Connection type	USB plug type A
Operating temperature range	-20 °C ... +70 °C / [-4 °F ... +158 °F]
Dimensions (W x H x D) [mm] / [in]	15 x 112.5 x 25 / [0.59 x 4.43 x 0.98]
Mounting position	any
Housing	Aluminium
Weight [g] / [lbs]	ca. 100 / [0.22]

4 Conformity to standards

The USBi drives comply with the following standards and the following directive:

Standard	Classification
4 th supplement	
ATEX directive 2014/34/EU	
EN 60079-0 : 2012 + A11 : 2013	General requirements
EN 60079-11 : 2012	Intrinsic safety "i"
Electromagnetic compatibility	
EMC directive	
2014/34/EU	Classification
EN 61326-1 : 2013	General requirements
RoHS directive	
2011/65/EU	Classification
EN 50581 : 2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

5 Certificates

The USBi Drives are certified for installation in the following areas:

Europe:

according to ATEX Directive
for installation in zones 1, 2, 21 and 22

International / Australia:

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

5.1 ATEX


The ATEX certificate is listed under the following certification number:

Certificate number: TÜV 06 ATEX 7342


5.2 IECEX

The IECEX certificate is listed under the following certification number:

Certificate number: IECEX TUR 13.0005

 DOCUMENTATION	<p>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.</p>
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6 Marking

Manufacturer	R. STAHL HMI Systems GmbH	
Type code	USBi-Drive-xxx-yyy (Rev. H)	
CE classification:	CE 0158	
Testing authority and certificate number:	TUV 06 ATEX 7342 IECEX TUR 13.0005	
Ex classification:		
ATEX		II 2 G Ex ib IIC T4 Gb II 2 D Ex ib IIIC T130°C Db
IECEX		Ex ib IIC T4 Gb Ex ib IIIC T130°C Db

7 Ambient temperature range

The temperature range is -20°C ... +70°C.

8 Safety-related data

8.1 Revision H - actual delivery status

Actual delivery status, should be used at all HMI devices (also previous device version).

The safe maximum values of the USBi-Drives with 32 or 64 GB memory of Revision H are:

U _i :	5.9 VDC
I _i :	3.0 A
P _i :	6.02 W
C _i :	9.5 µF
L _i :	3.5 µH

9 Proof of intrinsic safety

Proof of intrinsic safety for the connection of USBi drives with ET-/MT-xx6 HMI devices.

9.1 General information

Proof of intrinsic safety is based on the principles of IEC/EN 60079-14 and the standards referred to therein. Particular reference is made to Chapter 12 "Additional requirements for the type of protection i -intrinsic safety" in IEC/EN 60079-14.

Proof has been drawn up on the basis of conformity certification as per IEC/EN 60079-0 and IEC/EN 60079-11 or the EC type examination certificate in accordance with Directive 94/9/EC and the comparison of the safety-related data listed in these documents.

The following EC-type examination certificates were used:

<i>Device</i>		<i>EC type examination certificate</i>
ET-xx6	—	TÜV 05 ATEX 7176 X
MT-xx6	—	TÜV 07 ATEX 7471 X
ET-xx6-A	—	TÜV 07 ATEX 7041 X
MT-xx6-A	—	TÜV 11 ATEX 7103 X
USBi-Drive-xxx-yyy (Rev. H)	—	TÜV 06 ATEX 7342

The testing authority has listed **all** conditions applicable to intrinsic safety in the EC type examination certificates.

If an EC type examination certificate for a device only specifies the input voltage (U_i), for example, intrinsic safety is guaranteed if the associated supply does not exceed this voltage (U_o is less than / equals U_i).


Other output parameters specified in the examination certificate of the power supply (e.g. I_o , P_o) are in this case irrelevant to intrinsic safety.

NOTICE

The data given in this document do **NOT** absolve the fitter and / or operator of the systems from their obligation to ensure compliance with legal requirements, directives and regulations. Due diligence remains the sole responsibility of the fitter and / or operator !

9.2 Interconnection

In this part we list the voltages, currents, capacitance and inductance values of all circuits to determine whether the USBi drives may be connected to the HMI devices device platform Eagle (SERIES 300 Operator Interfaces - Eagle, SERIES 400 Open HMI - Panel PC's and SERIES 500 Thin Clients).

 NOTICE	The data given for this interconnection do NOT absolve the fitter and / or operator of the systems from their obligation and responsibility to ensure compliance with legal requirements, directives and regulations. Due diligence remains the sole responsibility of the fitter and / or operator !
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9.2.1 ET-/MT-xx6-TX/FX HMI device (HW-Rev. 2.xx)

a) ET-/MT-xx6 HMI device with USBi-Drive-xxx-yyy (Rev. G)

Source / active	==>	Acceptor / passive
ET/MT-xx6		USBi-Drive-xxx-yyy (Rev. H)
Terminal X4 or X6		
$U_o = 5.9 \text{ VDC}$	\leq	$U_i = 5.9 \text{ VDC}$
$I_o = 1.02 \text{ A}$	\leq	$I_i = 3 \text{ A}$
$P_o = 6.02 \text{ W}$	\leq	$P_i = 6.02 \text{ W}$
$C_{OIC} [\mu\text{F}] =$	\geq	$C_i 9.5 \mu\text{F}$
$L_{OIC} [\mu\text{H}] =$	\geq	$L_i 3.5 \mu\text{H}$
$C_{OIB} [\mu\text{F}] =$	\geq	$C_i 9.5 \mu\text{F}$
$L_{OIB} [\mu\text{H}] =$	\geq	$L_i 3.5 \mu\text{H}$

C_o and L_o pairs directly above/underneath each other may be used.

9.2.2 ET-/MT-xx6-A HMI device (HW-Rev. 3.xx)

a) ET-/MT-xx6-A HMI device with USBi-Drive-xxx-yyy (Rev. G)
Circuits in zone 1

Source / active	==>	Acceptor / passive
ET/MT-xx6-A		USBi-Drive-xxx-yyy (Rev. H)
Terminal X4 or X6		
$U_o = 5.9 \text{ VDC}$	\leq	$U_i = 5.9 \text{ VDC}$
$I_o = 2.18 \text{ A} / 2.69 \text{ A}^*$	\leq	$I_i = 3 \text{ A}$
$P_o = 1.24 \text{ W}$	\leq	$P_i = 6.02 \text{ W}$
$C_{OIC} [\mu\text{F}] =$	\geq	$C_i 9.5 \mu\text{F}$
$L_{OIC} [\mu\text{H}] =$	\geq	$L_i 3.5 \mu\text{H}$
$C_{OIB} [\mu\text{F}] =$	\geq	$C_i 9.5 \mu\text{F}$
$L_{OIB} [\mu\text{H}] =$	\geq	$L_i 3.5 \mu\text{H}$

C_o and L_o pairs directly above/underneath each other may be used.

- a1) MT-xx6-A HMI device with USBi-Drive-xxx-yyy (Rev. G)
Circuits in zone 2

Source / active					==>	Acceptor / passive
MT-xx6-A						USBi-Drive-xxx-yyy (Rev. H)
Terminal X4 or X6						
U _o = 5.9 VDC					≤	U _i = 5.9 VDC
I _o = 2.18 A / 2.69 A *					≤	I _i = 3 A
P _o = 1.24 W					≤	P _i = 6.02 W
C _{oIIC} [μF] =	24		12		≥	C _i 9.5 μF
L _{oIIC} [μH] =	5		10		≥	L _i 3.5 μH
C _{oIB} [μF] =	37 / 29 *	92 / 84 *	200 / 190 *	790 / 770 *	≥	C _i 9.5 μF
L _{oIB} [μH] =	50	20	10	5	≥	L _i 3.5 μH

C_o and L_o pairs directly above/underneath each other may be used.

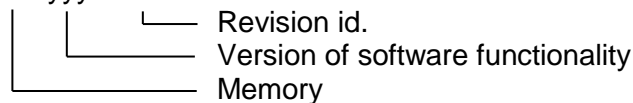
* Values depending from number of supplement of EC type examination certificate

10 Type code

10.1 Revision H - actual delivery status

Type code:

USBi-Drive-xxx-yyy Rev. H



Product type:

- USBi-Drive-32GB

11 Safety Advice

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

	<p>The notes listed below in section 11.1 must be heeded to avoid injury and damage to equipment !</p>
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11.1 Installation and operation

Please note the following when installing and operating the device:

- The in each case valid national regulations for installation and assembly apply (e.g. IEC/EN 60079-14).
- The USBi Drives may be installed in zones 1 or 2 and 21 or 22.
- The USBi Drives can be operated in any position.
- If the USBi Drive is constantly in use it must be protected by a housing or cover of suitable protection type.
- The intrinsically safe circuits must be installed according to applicable regulations.
- When installed in zones 1, 2, 21 and 22, the USBi Drives may be connected to intrinsically safe input circuits.
- The USBi Drives can be connected to an intrinsically safe as well as non-intrinsically safe USB interface.
- The safety values of the USBi drive must match those of the device to which it is connected.
- Interconnecting several active devices in an intrinsic safety circuit may result in different safe maximum values. This could compromise intrinsic safety !
- 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 USBi Drive for its intended purpose only (see "Function").

Incorrect or unauthorized use and non-compliance with the instructions in this manual will void any warranty on our part.

No changes may be made to the USBi Drives or their components that compromise explosion protection !

The USBi Drives may only be installed and operated in an undamaged, dry and clean condition !

12 Maintenance, service



NOTICE

Associated equipment is subject to maintenance, service and testing according to guidelines 1999/92/EG, IEC/EN 60079-14, -17, -19 and BetrSichVer (Betriebssicherheits-verordnung - German Regulation of Workplace Safety) also apply !

The USBi drives contain no replaceable parts. It is therefore not necessary to carry out regular adjustments.

Maintenance should focus on the following:

- Damage to / dirt on the plug-in terminal
- Housing damage
- Encapsulation material damage


12.1 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 appropriate national rules and regulations.

13 Troubleshooting

The USBi drives cannot be repaired.

In addition, the following applies:

 NOTICE	Devices operated in hazardous areas must not be modified. Repairs may only be carried out by qualified, authorised staff specially trained for this purpose.
	Repairs may only be carried out by specially trained staff who are familiar with all basic conditions of the applicable user regulations and – if necessary – have been authorized by the manufacturer.

14 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 USBi Drives 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 Monitoring and control devices	SG5 Small equipment <50 cm

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

14.1 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 USBi Drives are conform with the requirements from RoHS directive 2011/65/EU, dated 03.01.2013.

15 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: **USB Memory Stick**
that the product:
que le produit:

Typ(en), type(s), type(s): **USBi-Drive-xxx-yyy (Rev.H)**
 with xxx = storage capacity
 yyy = software functionality (not Ex-relevant)

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)
2014/34/EU ATEX-Richtlinie 2014/34/EU ATEX Directive 2014/34/UE Directive ATEX	EN 60079-0: 2012 +A11:2013 EN 60079-11: 2012

Kennzeichnung, marking, marquage: **II 2G Ex ib IIC T4 Gb**
II 2D Ex ib IIIC T130°C Db

CE 0158

EG/EU-Baumusterprüfbescheinigung: **TÜV 06 ATEX 7342**
EC/EU Type Examination Certificate:
Attestation d'examen CE/UE de type:
TÜV Rheinland Industrie Service GmbH (NB 0035)
 Am grauen Stein, 51105 Köln (Cologne), Germany

2014/30/EU EMV-Richtlinie 2014/30/EU EMC Directive 2014/30/UE Directive CEM	EN 61326-1:2013-01
Produktnormen nach RoHS-Richtlinie (2011/65/EU): <i>Product standards according to RoHS Directive:</i> <i>Normes des produit pour la Directive RoHS:</i>	EN 50581:2012

Köln, 2017-08-22

Ort und Datum
Place and date
Lieu et date

i.V.

J. Düren
 Technical Director

i.V.

A. Jung
 Ex Representative

16 Release notes

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

Version 01.04.00

- Addition of 4th supplement
- Addition of USBi Drive Rev. H with all data in all sections
- Renew "Declaration of EC conformity"
- Text-, layout- and formal corrections

Version 01.04.01

- Adaption of section "Disposal" according to the current WEEE directive
- Formal changes

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