Certificates

SHARK Device Platform

ET-xx8 / MT-xx8

Series 400 Panel PCs
Series 500 Thin Clients
Series 600 KVM Systems

STAHL

THE STRONGEST LINK.

HW-Rev. ET-/MT-4x8:	**01.01.06**
HW-Rev. ET-/MT-5x8:	**01.01.06**
HW-Rev. ET-/MT-6x8:	**01.01.06**
Certificates Version:	**01.01.11**
Issue:	**28.08.2024**

Disclaimer

Publisher and copyright holder:

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Table of contents

1 Preface

This document contains all valid certificates for the HMI devices of the xx8 SERIES.
All certificates are also available on R. STAHL HMI Systems GmbH's website and on the CDs / DVDs / USB sticks included in the delivery and a copy can also be ordered from R. STAHL HMI Systems GmbH.

2 ATEX EC type examination certificate

2.1 1. Supplement

Translation

1 **EU-Type Examination Certificate Supplement 1**

Change to Directive 2014/34/EU

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 14 ATEX E 134 X**

4 Product: **HMI-Series **-xx8-...**

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

6 Address: **Adolf-Grimme Allee 8, 50829 Köln, Germany**

7 This supplementary certificate extends EC-Type Examination Certificate No. BVS 14 ATEX E 134 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential Report No. BVS PP 14.2217 EU.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-5:2014	**Powder Filling "q"**
EN 60079-7:2015	**Increased Safety "e"**
EN 60079-11:2012	**Intrinsic Safety "i"**
EN 60079-28:2015	**Optical radiation "op is"**
EN 60079-31:2014	**Protection by Enclosure "t"**

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

II 2(1) G Ex eb q [ia op is Ga] IIC T4 Gb II 2(1) D Ex tb [ia op is Da] IIIC T115°C Db	for ET-xx8-...
II 3(1) G Ex ec nR [ia op is Ga] IIC T4 Gc II 3(1) D Ex tc [ia op is Da] IIIC T115°C Dc	for MT-xx8-...

DEKRA EXAM GmbH
Bochum, 2017-04-28

Signed: Jörg Koch — Certifier

Signed: Dr Michael Wittler — Approver

Page 1 of 8 of BVS 14 ATEX E 134 X / N1
This certificate may only be reproduced in its entirety and without any change.

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telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 14 ATEX E 134 X
Supplement 1

15 **Product description**

15.1 **Subject and type**

HMI series **-xx8-...
The apparatus of HMI-series **-xx8-... are available in the following variants:
xx-*x8-x x x x x x*

Optical interface for the connection of an OptionBox
XSX: OptionBox FO multimode interface
XLX: OptionBox FO single mode interface
X00: no OptionBox interface

RFID- interfaces
C1: RFID 13.56 MHz integrated
C2: RFID 2.4 GHz integrated
C3 = RFID 13.56 MHz MIFARE / DESFire / EV1, CRYPT
C4 = RFID 13.56 MHz MIFARE / DESFire / EV1, ASCII
C5 = RFID 13.56 MHz LEGIC, CRYPT
C6 = RFID 13.56 MHz LEGIC, ASCII
C7 = RFID 13.56 MHz NFC
C0: no RFID integrated

B1: Variant with Bluetooth
B0: Variant without Bluetooth

Wireless- interfaces
W02: one 2.4 GHz-interface
W05: one 5 GHz- interface
W22: two 2.4 GHz- interfaces
W55: two 5 GHz- interfaces
W25: one 2.4 GHz- and one 5 GHz- interface
W00: no Wireless interface

AC: AC power supply
DC: DC power supply

Optical interfaces (Ethernet)
*TX: 10/100/1000BaseTX copper interface
*FX: 100BaseFX FO multimode
*SX: 100BaseSX FO multimode
*LX: 1000BaseLX FO single-Mode
00: Other interface

3: Display size 1
4: Display size 2
5: Display size 2
6: Display size 2
7: Display size 2
8: Display size 3
9: Display size 2

ET: Version with EPL Gb, Db
MT: Version with EPL Gc, Dc

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In the complete type designation, the asterisks are replaced by alphanumeric or symbolic characters to indicate different variations of the apparatus without relevance for explosion protection.

15.2 **Description**

With this supplement the certificate is changed to Directive 2014/34/EU.
(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

The apparatus of HMI series **-xx8-... are designed for visualization and control of processes in hazardous areas.
The HMI series ET-xx8-... is suited for use in areas requiring EPL Gb resp. Db; the HMI series MT-xx8-... is suitable for use in areas requiring EPL Gc resp. Dc.
The intrinsically safe output circuits as well as the inherently safe optical radiation "op is" interfaces of the apparatus can be led in areas requiring category 1G resp. 1D.
The apparatus consist of a Display module and an E-Box-Module which are mounted together with a connector.
The Display module and E-Box-Module have type of protection "Ex q" (series ET-xx8-...) resp. "Ex nR" (series MT-xx8-...), the connector – in plugged state – is protected in type of protection "Ex eb" resp. "Ex ec".
The connection facilities of the apparatus are located in 2 terminal boxes on the back-side of the E-Box-Module. One terminal box contains only intrinsically safe connection facilities, the other, non-intrinsically safe terminal box is protected by types of protection "Ex q" resp. "Ex nR" and "op is".
The intrinsically safe limitation circuits are placed inside the E-Box-Module.

Reasons for this supplement

- change to Directive 2014/34/EU
- updating to the current standards
- three alternative RFID card reader type are added
- a new isolator type for RF interfaces for Ex ia interface X36 / X37 is added
- a mounting assembly with xx8 mounting frame kit is added
- the FO holder revision is updated
- 4 PCBs are revised.

15.3 **Parameters**

15.3.1 Non-intrinsically safe circuits

15.3.1.1 Terminal block X1

Non-intrinsically safe supply circuit (Power)				
Nominal voltage				
for type *-xx8*AC*		AC	100...240	V
for type *-xx8*DC*		DC	20... 30	V
Nominal current				
for type *-xx8*AC*			≤ 5	A
for type *-xx8*DC*			≤ 8	A
Nominal power			≤ 150	W
Max. input voltage	U_m	AC	250	V

15.3.1.2 Terminal blocks X2 and X3

Non-intrinsically safe interfaces Copper1 (X2) and Copper2 (X3)				
Nominal voltage		AC/DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.1.3 Terminal block X4

Nominal voltage X4, terminal 1		DC	12	V
Nominal voltage X4, terminal 4		DC	24	V
Max. input voltage	U_m	AC	250	V

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15.3.1.4 Terminal block X5
Non-intrinsically safe CAN interface (E-Box)

Nominal voltage		AC/DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.1.5 Terminal block X6
Non-intrinsically safe USB interface (E-Box)

Nominal voltage		DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.1.6 Terminal block X7
Non-intrinsically safe RSxxx interface (E-Box)

Nominal voltage		AC/DC	12	V
Max. input voltage	U_m	AC	250	V

15.3.1.7 Terminal block X8
Non-intrinsically safe DVI interface (E-Box)

Nominal voltage		AC/DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.1.8 Terminal block X9
Non-intrinsically safe Audio/Video interface (E-Box)

Nominal voltage		AC/DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.1.9 Terminal block X10
Non-intrinsically safe SATA interface (E-Box)

Nominal voltage		AC/DC	5	V
Max. input voltage	U_m	AC	250	V

15.3.2 Intrinsically safe circuits level of protection Ex ia IIC resp. Ex ia III

15.3.2.1 Terminal block X30
for the connection of e.g. a Power Button

Intrinsically safe output PB (Power Button)
Terminals 1(+), 2/3/4(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		46	mA
Linear output characteristics				
Max. output power	P_o		61	mW
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		10	µF
for max. external inductance	L_o		20	µH

15.3.2.2 Terminal block X31
for the connection of e.g. up to 2 fans

Intrinsically safe output circuits FAN
Terminals 1(+), 2(gnd) and 3(+), 4(gnd)

for each circuit:

Max. output voltage	U_o	DC	15.75	V
Max. output current	I_o		189	mA
Trapezoidal output characteristics				
Max. output power	P_o		1.092	W
Max. external capacitance	C_o		290	nF
for max. external inductance	L_o		100	µH
or				
Max. external capacitance	C_o		478	nF
for max. external inductance	L_o		20	µH

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15.3.2.3 Terminal block X32
for the connection of e.g. a Barcode or Card reader

15.3.2.3.1 Intrinsically safe output circuit for the supply of the connected apparatus
The connected apparatus can be supplied either from the „10.4 V"-supply circuit or from the "5.4 V"-supply circuit. The terminals 1 and 2 shall not be connected at the same time.

15.3.2.3.1.1 Intrinsically safe output circuit "10.4 V"
Terminals 1(+), 3(gnd)

Max. output voltage	U_o	DC	10.4	V
Max. output current	I_o		391	mA
Trapezoidal output characteristics				
Max. output power	P_o		2.253	W
Max. external capacitance	C_o		2.52	µF
for max. external inductance	L_o		20	µH
or				
Max. external capacitance	C_o		1.2	µF
for max. external inductance	L_o		100	µH

15.3.2.3.1.2 Intrinsically safe output circuit "5.4 V"
Terminals 2(+), 3(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		420	mA
Trapezoidal output characteristics				
Max. output power	P_o		1.213	W
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		45	µF
for max. external inductance	L_o		2	µH

15.3.2.3.2 Intrinsically safe data circuit
Terminals 4(TXD), 5(RXD), 3(gnd)

Max. input voltage	U_i		±12.5	V
Effective internal capacitance	C_i		negligible	
Effective internal inductance	L_i		negligible	
Max. output voltage	U_o			
RXD-gnd resp. TXD-gnd		DC	±5.35	V
RXD-TXD		DC	±10.7	V
Max. output current	I_o		±16	mA
Linear output characteristics				
Max. output power	P_o		22	mW
Max. external capacitance	C_o		2.23	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		2.23	µF
for max. external inductance	L_o		20	µH

Note:
The external capacitances and inductances were calculated for the maximum voltage of 10.7 V. If only one of the two signals RXD or TXD is connected, only a reduced voltage of 5.35 V has to be considered. Therewith, the following values are permissible:

Max. external capacitance	C_o	65	µF
for max. external inductance	L_o	1	µH
or			
Max. external capacitance	C_o	45	µF
for max. external inductance	L_o	2	µH

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15.3.2.4 Terminal blocks X33 and X34
for the connection of e.g. a Keyboard (X33) resp. a Mouse (X34)

Terminals 1(+), 2(D-), (D+), 4(gnd)

For each terminal block:				
Max. output voltage	U_o	DC	5,36	V
Max. output current	I_o		249,85	mA
Max. output power	P_o		518	mW
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		0,68	µH
or				
Max. external capacitance	C_o		46	µF
for max. external inductance	L_o		1,68	µH
or				
Max. external capacitance	C_o		32	µF
for max. external inductance	L_o		2,68	µH
or				
Max. external capacitance	C_o		25	µF
for max. external inductance	L_o		3,68	µH
or				
Max. external capacitance	C_o		21	µF
for max. external inductance	L_o		4,68	µH

15.3.2.5 block/USB-socket X35
for the connection of e.g. an USB-Memory Stick

The connection can be done via terminal block X351 or USB-socket X352.

Terminals 1(+), 2(D-), 3(D+), 4(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		1.264	A
Max. output power	P_o		2.949	W
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		0.68	µH
or				
Max. external capacitance	C_o		44	µF
for max. external inductance	L_o		1.68	µH
or				
Max. external capacitance	C_o		30	µF
for max. external inductance	L_o		2.68	µH
or				
Max. external capacitance	C_o		23	µF
for max. external inductance	L_o		3.68	µH
or				
Max. external capacitance	C_o		19	µF
for max. external inductance	L_o		4.68	µH

15.3.2.6 Sockets X36 (RF1), X37 (RF2)
to be connected to an external antenna

Radio frequency	2.4 resp. 5	GHz
The radio frequency depends on the type (characters W02, W05, W22, W55, W25 resp. W00 in type code, see clause 1).		
effective radio frequency power of the used transmitter	17	dBm
resp.	50	mW

The maximum radio frequency power of the antenna is calculated as product of the effective radio frequency power of the transmitter and the antenna gain of the used antenna (losses of the cable between X36 resp. X37 and antenna may be considered).
The maximum radio frequency power shall not exceed the maximum permissible radio frequency power 2 W for Group IIC.

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15.3.3 Fiber optic interfaces:

X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*FX*:		
Wavelength	1310	nm
Nominal optical radiated power	0.344	mW
Max. optical radiated power under fault conditions	35	mW
X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*SX*:		
Wavelength	850	nm
Nominal optical radiated power	0.22	mW
Max. optical radiated power under fault conditions	35	mW
X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*LX*:		
Wavelength	1310	nm
Nominal optical radiated power	0.22	mW
Max. optical radiated power under fault conditions	35	mW
X22: Fiber 3 for HMI series type xx8-*XSX*:		
Wavelength	850	nm
Nominal optical radiated power	0.22	mW
Max. optical radiated power under fault conditions	35	mW
X22: Fiber 3 for HMI series type xx8-*XLX*:		
Wavelength	1310	nm
Nominal optical radiated power	0.22	mW
Max. optical radiated power under fault conditions	35	mW

15.3.4 Ambient temperature range T_a -40 °C…+70 °C

16 **Report Number**

BVS PP 14.2217 EU, as of 2017-04-28

17 **Special Conditions for Use**

17.1 The intrinsically safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist.

17.2 For variants with Wireless interface (characters W02, W05, W22, W55 or W25 in type designation):
The maximum radio frequency power threshold at the antennas connected to the interfaces X36 and X37 shall not exceed the admissible value of 2 W for group IIC.
The calculation of this should be taken into account the output power of the transmitter (X36 / X37), the gain of the antenna and the losses in the cable.
The intrinsically safe circuits at X36 und X37 are connected to earth. The antennas connected to the interface must be installed in accordance with the earthing requirements of EN 60079-14 clause 16.2.3.

17.3 The covers of the connection compartments are equipped with cable glands and blind plugs. Optionally they can be equipped with plugs and sockets and switches.
This equipment has to fulfill IP66 and be separately certified for the respective type of protection.

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17.4 The HMI-series **-xx8-... can be mounted in an additional enclosure with a suitable cut out via a xx8 mounting frame kit which is approved for mounting in an Ex e, Ex p or Ex tb enclosure.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

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
Bochum, dated 2017-04-28
BVS-Hk/Nu A 20161135

Certifier

Approver

DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

3 IECEx certificate

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BVS 14.0116X issue No.:2

Certificate history:
Issue No. 2 (2017-5-9)
Issue No. 1 (2015-5-18)
Issue No. 0 (2014-11-28)

Status: Current

Date of Issue: 2017-05-09 Page 1 of 4

Applicant: R. STAHL HMI Systems GmbH
Adolf-Grimme Allee 8
50829 Köln
Germany

Equipment: HMI-Series **-xx8-..., for details see General product information
Optional accessory:

Type of Protection: Equipment protection by intrinsic safety "i", Equipment protection by type of protection "n", Protection of equipment and transmission systems using optical radiation, Equipment dust ignition protection by enclosure "t", Equipment protection by powder filling "q", Equipment protection by increased safety "e"

Marking: Type ET-xx8-...:
Ex eb q [ia op is Ga] IIC T4 Gb
Ex tb [ia op is Da] IIIC T115°C Db
Type MT-xx8-...:
Ex ec nR [ia op is Ga] IIC T4 Gc
Ex tc [ia op is Da] IIIC T115°C Dc

Approved for issue on behalf of the IECEx Certification Body: Jörg Koch

Position: Head of Certification Body

Signature: (for printed version)

Date: 9.5.17

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 EXAM GmbH
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44809 Bochum
Germany

DEKRA
DEKRA EXAM GmbH

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 14.0116X

Date of Issue: **2017-05-09** Issue No.: **2**

Page 2 of 4

Manufacturer: **R. STAHL HMI Systems GmbH**
Adolf-Grimme Allee 8
50829 Köln
Germany

Additional 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 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-28 : 2015 Edition: 2	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
IEC 60079-31 : 2013 Edition: 2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-5 : 2015 Edition: 4.0	Explosive atmospheres –Part 5: Equipment protection by powder filling "q"
IEC 60079-7 : 2015 Edition: 5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*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/ExTR14.0110/02

Quality Assessment Report:

DE/BVS/QAR06.0007/08

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 14.0116X

Date of Issue: **2017-05-09** Issue No.: **2**

Page 3 of 4

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

Subject and type:

See Annex

Parameters:

See Annex

Description:

The apparatus of HMI series **-xx8-... are designed for visualization and control of processes in hazardous areas. The HMI series ET-xx8-... is suited for use in areas requiring EPL Gb resp. Db; the HMI series MT-xx8-... is suitable for use in areas requiring EPL Gc resp. Dc.
The intrinsically safe output circuits as well as the inherently safe optical radiation "op is" interfaces of the apparatus can be led in areas Zone 0 resp. Zone 20.
The apparatus consists of a Display module and an E-Box-Module which are mounted together with a connector. The Display module and E-Box-Module have type of protection "Ex q" (series ET-xx8-...) resp. "Ex nR" (series MT xx8-...), the connector - in plugged state - is protected in type of protection "Ex eb" resp. "Ex ec".
The connection facilities of the apparatus are located in 2 terminal boxes on the back-side of the E-Box-Module. One terminal box contains only intrinsically safe connection facilities, the other, non-intrinsically safe terminal box is protected by types of protection "Ex q" resp. "Ex nR" and "op is". The intrinsically safe limitation circuits are placed inside the E-Box-Module.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1 The intrinsically safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist.

2 For variants with wireless interface (characters W 02, W 05, W 22, W 55 or W 25 in type code):
The maximum radio frequency power threshold at the antennas connected to the interfaces X36 and X37 shall not exceed the admissible value of 2 W for Group IIC.
The calculation of this should take into account the output power of the transmitter (X36 / X37), the gain of the antenna and the losses in the cable.
The intrinsically safe circuits at X36 und X37 are connected to earth. The antennas connected to the interface must be installed in accordance with earthing requirements of IEC 60079-14.

3 The covers of the connection compartments are equipped with cable glands and blind plugs. Optionally they can be equipped with plugs and sockets and switches.
This equipment has to fulfill IP66 and be separately certified for the respective type of protection.

4 The HMI-series **-xx8-... can be mounted in an additional enclosure with a suitable cut out via a xx8 mounting frame kit which is approved for mounting in an Ex e, Ex p or Ex tb enclosure.

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 14.0116X

Date of Issue: **2017-05-09** Issue No.: **2**

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The reason for this issue is the updating to the IEC 60079-5:2015, Ed. 4. The other annexes of the Test Report are still valid.
The address of the manufacturer changed from Im Gewerbegebiet Pesch 14, 50767 Köln to Adolf-Grimme Allee 8, 50829 Köln.

Annex: BVS_14_0116X_RStahl_Annex_Issue2.pdf

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 1 of 6

Subject and type:

The apparatus of HMI-series **-xx8-... are available in the following variants:

xx-*x8-x x x x x x*

Optical interface for the connection of an OptionBox
XSX-OptionBox FO multimode interface
XLX-OptionBox FO single mode interface
X00-No OptionBox interface

RFID interfaces
C1:RFID 13.56 MHz integrated
C2:RFID 2.4 GHz integrated
C3=RFID 13.56 MHz MIFARE / DESFire / EV1, CRYPT
C4=RFID 13.56 MHz MIFARE / DESFire / EV1, ASCII
C5=RFID 13.56 MHz LEGIC, CRYPT
C6=RFID 13.56 MHz LEGIC, ASCII
C7=RFID 13.56 MHz NFC
C0:no RFID integrated

B1:Variant with Bluetooth
B0:Variant without Bluetooth

Wireless interfaces
W02:one 2.4 GHz interface
W05:one 5 GHz interface
W22:two 2.4 GHz interfaces
W55:two 5 GHz interfaces
W25:one 2.4 GHz and one 5 GHz interface
W00:no Wireless interface

AC:AC power supply
DC:DC power supply

Optical interfaces (Ethernet)
*TX:10 / 100 / 1000 BaseTX copper interface
*FX: 100 BaseFX FO multimode
*SX:1000 BaseSX FO multimode
*LX:1000 BaseLX FO single mode
00:Other interface

3:Display size 1
4:Display size 2
5:Display size 2
6:Display size 2
7:Display size 2
8:Display size 3
9:Display size 2

ET:Version with EPL Gb, Db
MT:Version with EPL Gc, Dc

In the complete type designation, the asterisks are replaced by alphanumeric or symbolic characters to indicate different variations of the apparatus without relevance for explosion protection.

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 2 of 6

Parameters:

1	**Non-intrinsically safe circuits**				
1.1	Terminal block X1				
	Non-intrinsically safe supply circuit (Power)				
	Nominal voltage				
	for type *-xx8*AC*		AC	100...240	V
	for type *-xx8*DC*		DC	20... 30	V
	Nominal current				
	for type *-xx8*AC*			≤ 5	A
	for type *-xx8*DC*			≤ 8	A
	Nominal power			≤ 150	W
	Max. input voltage	U_m	AC	250	V
1.2	Terminal blocks X2 and X3				
	Non-intrinsically safe interfaces Copper1 (X2) and Copper2 (X3)				
	Nominal voltage		AC/DC	5	V
	Max. input voltage	U_m	AC	250	V
1.3	Terminal block X4				
	Non-intrinsically safe circuit DC out				
	Nominal voltage X4, terminal 1		DC	12	V
	Nominal voltage X4, terminal 4		DC	24	V
	Max. input voltage	U_m	AC	250	V
1.4	Terminal block X5				
	Non-intrinsically safe CAN interface (E-Box)				
	Nominal voltage		AC/DC	5	V
	Max. input voltage	U_m	AC	250	V
1.5	Terminal block X6				
	Non-intrinsically safe USB interface (E-Box)				
	Nominal voltage		DC	5	V
	Max. input voltage	U_m	AC	250	V
1.6	Terminal block X7				
	Non-intrinsically safe RSxxx interface (E-Box)				
	Nominal voltage		AC/DC	12	V
	Max. input voltage	U_m	AC	250	V
1.7	Terminal block X8				
	Non-intrinsically safe DVI interface (E-Box)				
	Nominal voltage		AC/DC	5	V
	Max. input voltage	U_m	AC	250	V
1.8	Terminal block X9				
	Non-intrinsically safe Audio / Video interface (E-Box)				
	Nominal voltage		AC/DC	5	V
	Max. input voltage	U_m	AC	250	V
1.9	Terminal block X10				
	Non-intrinsically safe SATA interface (E-Box)				
	Nominal voltage		AC/DC	5	V
	Max. input voltage	U_m	AC	250	V

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 3 of 6

2 **Intrinsically safe circuits level of protection Ex ia IIC resp. Ex ia III**

2.1 Terminal block X30
for the connection of e.g. a Power Button

Intrinsically safe output PB (Power Button)
Terminals 1(+), 2/3/4(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		46	mA
Linear output characteristics				
Max. output power	P_o		61	mW
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		10	µF
for max. external inductance	L_o		20	µH

2.2 Terminal block X31
for the connection of e.g. up to 2 fans

Intrinsically safe output circuits FAN
Terminals 1(+), 2(gnd) and 3(+), 4(gnd)

for each circuit:

Max. output voltage	U_o	DC	15.75	V
Max. output current	I_o		189	mA
Trapezoidal output characteristics				
Max. output power	P_o		1.092	W
Max. external capacitance	C_o		290	nF
for max. external inductance	L_o		100	µH
or				
Max. external capacitance	C_o		478	nF
for max. external inductance	L_o		20	µH

2.3 Terminal block X32
for the connection of e.g. a Barcode or Card reader

2.3.1 **Intrinsically safe output circuit for the supply of the connected apparatus**
The connected apparatus can be supplied either from the „10.4 V"-supply circuit or from the "5.4 V"-supply circuit. The terminals 1 and 2 shall not be connected at the same time.

2.3.1.1 **Intrinsically safe output circuit "10.4 V"**
Terminals 1(+), 3(gnd)

Max. output voltage	U_o	DC	10.4	V
Max. output current	I_o		391	mA
Trapezoidal output characteristics				
Max. output power	P_o		2.253	W
Max. external capacitance	C_o		2.52	µF
for max. external inductance	L_o		20	µH
or				
Max. external capacitance	C_o		1.2	µF
for max. external inductance	L_o		100	µH

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 4 of 6

2.3.1.2 Intrinsically safe output circuit "5.4 V"
Terminals 2(+), 3(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		420	mA
Trapezoidal output characteristics				
Max. output power	P_o		1.213	W
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		45	µF
max. external inductance	L_o		2	µH

2.3.2 Intrinsically safe data circuit
Terminals 4(TXD), 5(RXD), 3(gnd)

Max. input voltage	U_i		±12.5	V
Effective internal capacitance	C_i		negligible	
Effective internal inductance	L_i		negligible	
Max. output voltage	U_o			
RXD-gnd resp. TXD-gnd		DC	±5.35	V
RXD-TXD		DC	±10.7	V
Max. output current	I_o		±16	mA
Linear output characteristics				
Max. output power	P_o		22	mW
Max. external capacitance	C_o		2.23	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		2.23	µF
for max. external inductance	L_o		20	µH

Note:
The external capacitances and inductances were calculated for the maximum voltage of 10.7 V.
If only one of the two signals RXD or TXD is connected, only a reduced voltage of 5.35 V has to be considered. Therewith, the following values are permissible:

Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		1	µH
or				
Max. external capacitance	C_o		45	µF
for max. external inductance	L_o		2	µH

2.4 Terminal blocks X33 and X34
for the connection of e.g. a Keyboard (X33) resp. a Mouse (X34)

Terminals 1(+), 2(D-), (D+), 4(gnd)

For each terminal block:

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		249.85	mA
Max. output power	P_o		518	mW
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		0.68	µH
or				
Max. external capacitance	C_o		46	µF
for max. external inductance	L_o		1.68	µH

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 5 of 6

or				
Max. external capacitance	C_o		32	µF
for max. external inductance	L_o		2.68	µH
or				
Max. external capacitance	C_o		25	µF
for max. external inductance	L_o		3.68	µH
or				
Max. external capacitance	C_o		21	µF
for max. external inductance	L_o		4.68	µH

2.5 Terminal block/USB-socket X35
for the connection of e.g. an USB-Memory Stick

The connection can be done via terminal block X351 or USB-socket X352.

Terminals 1(+), 2(D-), 3(D+), 4(gnd)

Max. output voltage	U_o	DC	5.36	V
Max. output current	I_o		1.264	A
Max. output power	P_o		2.949	W
Max. external capacitance	C_o		65	µF
for max. external inductance	L_o		0.68	µH
or				
Max. external capacitance	C_o		44	µF
for max. external inductance	L_o		1.68	µH
or				
Max. external capacitance	C_o		30	µF
for max. external inductance	L_o		2.68	µH
or				
Max. external capacitance	C_o		23	µF
for max. external inductance	L_o		3.68	µH
or				
Max. external capacitance	C_o		19	µF
for max. external inductance	L_o		4.68	µH

2.6 Sockets X36 (RF1), X37 (RF2)
to be connected to an external antenna

Radio frequency	2.4 resp. 5	GHz

The radio frequency depends on the type (characters W02, W05, W22, W55, W25 resp. W00 in type code, see clause 1).

Effective radio frequency power of the used transmitter	17	dBm
resp.	50	mW

The maximum radio frequency power of the antenna is calculated as product of the effective radio frequency power of the transmitter and the antenna gain of the used antenna (losses of the cable between X36 resp. X37 and antenna may be considered). The maximum radio frequency power shall not exceed the maximum permissible radio frequency power 2 W for Group IIC.

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DEKRA

Certificate No.: **IECEx BVS 14.0116X, Issue No. 2**
Annex
Page 6 of 6

3	**Fiber optic interfaces:**		
	X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*FX*:		
	Wavelength	1310	nm
	Nominal optical radiated power	0.344	mW
	Max. optical radiated power under fault conditions	35	mW
	X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*SX*:		
	Wavelength	850	nm
	Nominal optical radiated power	0.22	mW
	Max. optical radiated power under fault conditions	35	mW
	X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx8-*LX*:		
	Wavelength	1310	nm
	Nominal optical radiated power	0.22	mW
	Max. optical radiated power under fault conditions	35	mW
	X22: Fiber 3 for HMI series type xx8-*XSX*:		
	Wavelength	850	nm
	Nominal optical radiated power	0.22	mW
	Max. optical radiated power under fault conditions	35	mW
	X22: Fiber 3 for HMI series type xx8-*XLX*:		
	Wavelength	1310	nm
	Nominal optical radiated power	0.22	mW
	Max. optical radiated power under fault conditions	35	mW
4	**Ambient temperature range T_a**	-40 °C up to +70 °C	

4 FM certificate USA

CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM16US0278X**
3. **Equipment:** **ET-xx8 and MT-xx8 Panel PC System**
   (Type Reference and Name) **Panel PC System**
4. **Name of Listing Company:** **R. Stahl HMI Systems GmbH**
5. **Address of Listing Company:** **Adolf-Grimme-Allee 8**
   Cologne, 50829
   Germany
6. The examination and test results are recorded in confidential report number:

   3059278 dated 31st March 2017
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   FM Class 3600:2011, FM Class 3616:2011, FM Class 3810:2005, ANSI/ISA 60079-0:2013, ANSI/UL 60079-5:2016, ANSI/UL 60079-7:2017, ANSI/ISA 60079-11: 2014, ANSI/ISA 60079-15: 2013, ANSI/ISA 60079-28: 2013, ANSI/UL 60079-31: 2015 ANSI/IEC 60529:2004
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J.E. Marquedant
Manager, Electrical Systems

26 November 2017
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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F 347 (Mar 16) Page 1 of 7

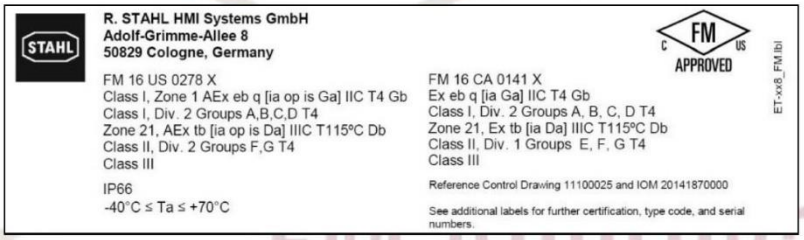
SCHEDULE

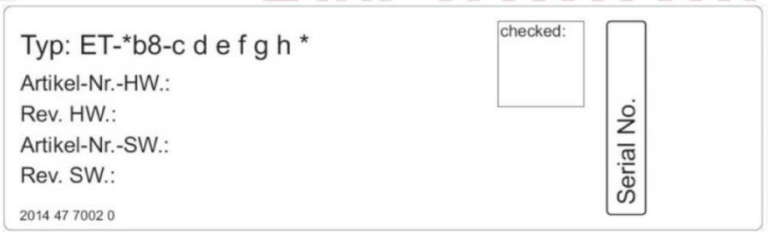
US Certificate Of Conformity No: FM16US0278X

10. Equipment Ratings:

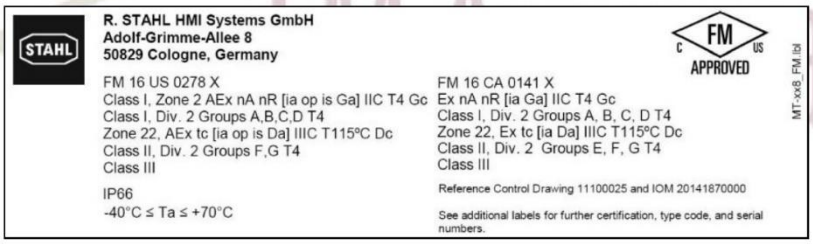
Special Protection for Class I, Division 2, Groups A, B, C and D, T4 Ta = -40°C to +70°C; Special Protection for Class II, III, Division 2, Groups F and G, T4 Ta = -40°C to +70°C; for use in Class I, Zone 1, AEx eb q [ia op is Ga] IIC T4 Gb Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Class I, Zone 2 AEx nA nR [ia op is Ga] IIC T4 Gc Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Zone 21, AEx tb [ia op is Da] IIIC T115°C Db Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Zone 22, AEx tc [ia op is Da] IIIC T115°C Dc Ta = -40°C to +70°C in accordance with drawing 11100025; indoor and outdoor IP66 hazardous (classified) locations.

11. The marking of the equipment shall include:
ET-xx8 Series Panel PC System:





MT-xx8 Series Panel PC System:



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12. **Description of Equipment:**

The ET-xx8 and MT-xx8 HMI Series Panel PC is an electronic operating and monitoring device. It is designed to operate, visualize and control processes in a hazardous area. The product consists of two enclosures which are mounted together. One enclosure is the display module which is available in three sizes and the other enclosure is the Electronic Box (E-Box) module. The display module mostly covers the display, the E-Box module contains the electrical connections. For service purposes the modules are interchangeable.

The display module consists of enclosure part and cover part. It includes electronic and mechanical components. The display module contains a glass pane. Behind the glass pane a display is mounted. Furthermore other electronics are mounted behind the window including a touch sensor, sensor buttons, RF modules, RFID modules and a camera. The cover, which is over the back of the display module, contains a connector for electrical connection to the E-Box module, which is provided by the manufacturer. The rear side of the display module enclosure includes a cooling fins. The outer cooling fins are utilized for mounting other equipment. The display module can be mounted directly connected to the E-box or in a separate location and connected to the E-Box.

The E-Box consists of enclosure part and a cover part. It includes electronic and mechanical components. The enclosure part covers two additional connection compartments. One connection compartment is for AEx e / AEx nA and a second connection compartment for AEx ia connections. At the cover part a connector for electrical connection to the display module is integrated. The electronics within the E-Box include the power supply, AEx ia barriers, various electronics like CPU electronics, KVM electronics, graphic card, Interface converter and RF Modules.

The connection between the display module and E-Box module form a compartment. The compartment is separated into two parts. One part of the compartment consists of the E-Box module and contains a connector plug and the other part of the compartment consists of the display module and contains a connector header. When the E-Box module and display module are mounted together the connector plug and header connect together and the two halves form a compartment.

The xx8 mounting frame kit has been tested regarding the standards listed below, when mounted in accordance to drawing 10560310:

- Thermal endurance to heat/cold according to ANSI/ISA 60079-0, Ed. 6, sections 26.8 and 26.9.
- Pressure test according to ANSI/ISA 60079-31, Ed. 2, section 6.1.1.3.
- Test for degrees of protection IP66 according to ANSI/ISA 60079-0, Ed. 6.

Although 4 PCB have been revised the older version of the PCB are still FM Approved and continue to be manufactured.

Model Code Structure:

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US Certificate Of Conformity No: FM16US0278X

ET-ab8-c-d-e-f-g-hi. HMI Series Panel PC.
MT-ab8-c-d-e-f-g-hi. HMI Series Panel PC.
a = Series: 4 = Series 400, Panel PC
5 = Series 500, Thin Clients
6 = Series 600, KVM System
7 = Series 700, Direct Monitors
b = Display size: 3 = Display size 1 (15")
8 = Display size 3 (24" wide screen)
9 = Display size 2 (21.5")
c = Optical Interface (Ethernet): *TX = 10/100/1000Base TX copper interface
*FX = 100BaseFX FO multimode
*SX = 100BaseSX FO multimode
*LX = 1000BaseLX FO single mode
00 = Other interface
d = Power Supply Version AC: AC Power
DC: DC Power
e = Wireless Interface: W00 = No RF interface integrated
W02 = RF 2.4GHz interface
W05 = RF 5GHz interface
W22 = 2x RF 2.4GHz interface
W55 = 2x RF 5GHz interface
W25 = RF 2.4GHz and RF 5GHz interface
f = B1: Bluetooth integrated
B0: No Bluetooth integrated
g = RFID interface: C0 = No RFID integrated
C1 = RFID 13.56MHz integrated
C2 = RFID 2.4GHz integrated
C3 = RFID 13.56MHz MIFARE / DESFire / EV1, CRYPT
C4 = RFID 13.56MHz MIFARE / DESFire / EV1, ASCII
C5 = RFID 13.56MHz LEGIC, CRYPT
C6 = RFID 13.56MHz LEGIC, ASCII
C7 = RFID 13.56MHz NFC
h = Optical interface for the connection: X00 = No Option Box interface
XSX = Optical fiber Option Box interface 1000Base-SX, multi-mode
XLX = Optical fiber Option Box interface 1000Base-LX, single-mode
i = any alphanumeric or symbol characters, without relevance to hazardous location protection.

Entity Parameters:

X30: PB, power button (X30-1) connected parallel, GND (X20-2, X30-3, X30-4):

Max. output voltage	U_o	=	5.36	VDC	
Max. output current	I_o	=	46	mA	
Max. output power	P_o	=	0.061	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	65	10	µF
Max. external inductance	L_o	=	1	20	µH

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

X31: Fan power (X31-1), (X31-3) each circuit, GND (X31-2, X31-4):

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SCHEDULE

US Certificate Of Conformity No: FM16US0278X

Max. output voltage	U_o	=	15.75	VDC	
Max. output current	I_o	=	189	mA	
Max. output power	P_o	=	1.092	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	0.290	0.478	µF
Max. external inductance	L_o	=	100	20	µH

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

X32: Barcode / reader 10.4V power (X32-1), GND (X32-3):

Max. output voltage	U_o	=	10.4	VDC	
Max. output current	I_o	=	391	mA	
Max. output power	P_o	=	2.253	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	2.52	1.2	µF
Max. external inductance	L_o	=	20	100	µH

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

X32: Barcode / reader 5.36V power (X32-2), GND (X32-3):

Max. output voltage	U_o	=	5.36	VDC	
Max. output current	I_o	=	420	mA	
Max. output power	P_o	=	1.213	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	65	45	µF
Max. external inductance	L_o	=	1	2	µH

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

X32: Barcode / reader data Terminal 5 TXD (X32-5), 4 RXD (X32-4) each circuit, 3 GND (X32-3):

Max. output voltage	U_o	=		
between RXD and GND, resp. TXD and GND			±5.35	VDC
between RXD and TXD			±10.70	VDC
Effective internal capacitance	C_i	=	negligible	
Effective internal inductance	L_i	=	negligible	
Max. output current	I_o	=	16	mA
Max. output power	P_o	=	0.022	W
Max. input voltage	U_i	=	±12.5	VDC
Trapezoidal output characteristics				
Max. external capacitance	C_o	=	2.23	2.23 µF
Max. external inductance	L_o	=	1	20 µH

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

Note: The external capacitances and inductances were calculated for the maximum voltage of 10.7 V. If only one of the two signals RXD or TXD is connected, only a reduced voltage of 5.35 V has to be considered. Therewith, the following values are permissible:

Max. external capacitance C_o = *65uF*
for max. external inductance L_o = *1uH*
or
Max. external capacitance C_o = *45uF*
for max. external inductance L_o = *2uH*

X33 / X34: USB KB/M terminals + (X33/34-1), D- (X33/34-2), D+ (X33/34-3), GND (X33/34-4):

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US Certificate Of Conformity No: FM16US0278X

Max. output voltage	U_o	=	5.36	VDC					
Max. output current	I_o	=	249.85	mA					
Max. output power	P_o	=	0.518	W					
Trapezoidal output characteristics									
Max. external capacitance	C_o	=	65	46	32	25	21	µF	
Max. external inductance	L_o	=	0.68	1.68	2.68	3.68	4.68	µH	

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

X35: USB terminals + (X35-1), D- (X35-2), D+ (X35-3), GND (X35-4):

Max. output voltage	U_o	=	5.36	VDC				
Max. output current	I_o	=	1.264	A				
Max. output power	P_o	=	2.949	W				
Trapezoidal output characteristics								
Max. external capacitance	C_o	=	65	44	30	23	19	µF
Max. external inductance	L_o	=	0.68	1.68	2.68	3.68	4.68	µH

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

13. **Specific Conditions of Use:**

1. The intrinsic safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist.
2. For devices with wireless interface (characters W02, W05, W22, W55 or W25 in the type code):
   The maximum radio frequency power threshold at the antennas connected to the interfaces X36 and X37 shall not exceed the admissible value of 2W for Group IIC.
   The calculation of this should be taken into account the output power of the transmitter (X36 / X37), the gain of the antenna and the losses in the cable.
3. The intrinsic safe circuits at X36 and X37 are connected to earth. The antennas connected to the interface must be installed in accordance with earthing requirements of the National Electric Code ANSI/NFPA 70.
4. The covers of the connection compartments are equipped with cable glands and blind plugs.
   Optionally they can be equipped with plugs and sockets and switches.
   This equipment has to fulfill IP66 and be separately certified for the respective type of protection.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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SCHEDULE

US Certificate Of Conformity No: FM16US0278X

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
31st March 2017	Original Issue.
26th November 2017	Supplement 1: Report Reference: – 3062946 dated 26th November 2017 Description of the Change: Adds three alternate RFID card reader types, add a new isolator RF interface for interface X36 / X37, update FO holder revision, update 4 PCB revisions, update assessment to current standards.

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5 FM certificate Canada

CERTIFICATE OF CONFORMITY

1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** **FM16CA0141X**
3. **Equipment:** **ET-xx8 and MT-xx8 Panel PC System**
   (Type Reference and Name) **Panel PC System**
4. **Name of Listing Company:** **R. Stahl HMI Systems GmbH**
5. **Address of Listing Company:** **Adolf-Grimme-Allee 8**
   Cologne, 50829
   Germany
6. The examination and test results are recorded in confidential report number:

   3059278 dated 31st March 2017
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   CAN/CSA-C22.2 No. 61010-1:2004, CAN/CSA-C22.2 No. 60079-0:2015,
   CAN/CSA-C22.2 No. 60079-5:2016, CAN/CSA-C22.2 No. 60079-7:2016,
   CAN/CSA-C22.2 No. 60079-11:2014, CAN/CSA-C22.2 No. 60079-15:2016,
   CAN/CSA-C22.2 No. 60079-31:2015, CAN/CSA-C22.2 No. 60529: 2016
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J. E. Marquedant
Manager, Electrical Systems

26 November 2017
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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F 348 (Mar 16) Page 1 of 7

SCHEDULE

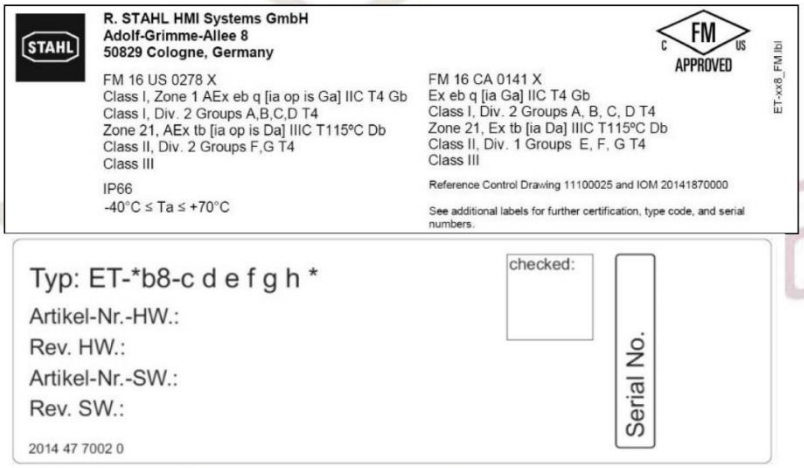
Canadian Certificate Of Conformity No: FM16CA0141X

10. Equipment Ratings:

Ignition Protected Apparatus for Class I, Division 2, Groups A, B, C and D, T4 Ta = -40°C to +70°C; Ignition Protected Apparatus for Class II, III, Division 1, Groups E, F and G T4 Ta = -40°C to +70°C; Ignition Protected Apparatus for Class II, III, Division 2, Groups E, F and G, T4 Ta = -40°C to +70°C; for use in Class I, Zone 1 Ex eb q [ia Ga] IIC T4 Gb Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Class I, Zone 2 Ex nA nR [ia Ga] IIC T4 Gc Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Zone 21, Ex tb [ia Da] IIIC T115°C Db Ta = -40°C to +70°C in accordance with drawing 11100025; for use in Zone 22, Ex tc [ia Da] IIIC T115°C Dc Ta = -40°C to +70°C in accordance with drawing 11100025; indoor and outdoor IP66 hazardous locations.

.

11. The marking of the equipment shall include:
ET-xx8 Series Panel PC System:



MT-xx8 Series Panel PC System:

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T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE

Canadian Certificate Of Conformity No: FM16CA0141X

12. **Description of Equipment:**

The ET-xx8 and MT-xx8 HMI Series Panel PC is an electronic operating and monitoring device. It is designed to operate, visualize and control processes in a hazardous area. The product consists of two enclosures which are mounted together. One enclosure is the display module which is available in three sizes and the other enclosure is the Electronic Box (E-Box) module. The display module mostly covers the display, the E-Box module contains the electrical connections. For service purposes the modules are interchangeable.

The display module consists of enclosure part and cover part. It includes electronic and mechanical components. The display module contains a glass pane. Behind the glass pane a display is mounted. Furthermore other electronics are mounted behind the window including a touch sensor, sensor buttons, RF modules, RFID modules and a camera. The cover, which is over the back of the display module, contains a connector for electrical connection to the E-Box module, which is provided by the manufacturer. The rear side of the display module enclosure includes a cooling fins. The outer cooling fins are utilized for mounting other equipment. The display module can be mounted directly connected to the E-box or in a separate location and connected to the E-Box.

The E-Box consists of enclosure part and a cover part. It includes electronic and mechanical components. The enclosure part covers two additional connection compartments. One connection compartment is for Ex e / Ex nA and a second connection compartment for Ex ia connections. At the cover part a connector for electrical connection to the display module is integrated. The electronics within the E-Box include the power supply, Ex ia barriers, various electronics like CPU electronics, KVM electronics, graphic card, Interface converter and RF Modules.

The connection between the display module and E-Box module form a compartment. The compartment is separated into two parts. One part of the compartment consistis of the E-Box module and contains a connector plug and the other part of the compartment consists of the display module and contains a connector header. When the E-Box module and display module are mounted together the connector plug and header connect together and the two halves form a compartment.

The xx8 mounting frame kit has been tested regarding the standards listed below, when mounted in accordance to drawing 10560310:

- Thermal endurance to heat/cold according to CAN/CSA-C22.2 No. 60079-0, Ed. 3, sections 26.8 and 26.9.
- Pressure test according to CAN/CSA C22.2 No. 60079-31 Ed. 2.0, section 6.1.3.
- Test for degrees of protection IP66 according to CAN/CSA-C22.2 No. 60079-0, Ed. 3.

Although 4 PCB have been revised the older version of the PCB are still FM Approved and continue to be manufactured.
Model Code Structure:

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Canadian Certificate Of Conformity No: FM16CA0141X

ET-ab8-c-d-e-f-g-hi. HMI Series Panel PC.
MT-ab8-c-d-e-f-g-hi. HMI Series Panel PC.
a = Series: 4 = Series 400, Panel PC
5 = Series 500, Thin Clients
6 = Series 600, KVM System
7 = Series 700, Direct Monitors
b = Display size: 3 = Display size 1 (15")
8 = Display size 3 (24" wide screen)
9 = Display size 2 (21.5")
c = Optical Interface (Ethernet): *TX = 10/100/1000Base TX copper interface
*FX = 100BaseFX FO multimode
*SX = 100BaseSX FO multimode
*LX = 1000BaseLX FO single mode
00 = Other interface
d = Power Supply Version AC: AC Power
DC: DC Power
e = Wireless Interface: W00 = No RF interface integrated
W02 = RF 2.4GHz interface
W05 = RF 5GHz interface
W22 = 2x RF 2.4GHz interface
W55 = 2x RF 5GHz interface
W25 = RF 2.4GHz and RF 5GHz interface
f = B1: Bluetooth integrated
B0: No Bluetooth integrated
g = RFID interface: C0 = No RFID integrated
C1 = RFID 13.56MHz integrated
C2 = RFID 2.4GHz integrated
C3 = RFID 13.56MHz MIFARE / DESFire / EV1, CRYPT
C4 = RFID 13.56MHz MIFARE / DESFire / EV1, ASCII
C5 = RFID 13.56MHz LEGIC, CRYPT
C6 = RFID 13.56MHz LEGIC, ASCII
C7 = RFID 13.56MHz NFC
h = Optical interface for the connection: X00 = No Option Box interface
XSX = Optical fiber Option Box interface 1000Base-SX, multi-mode
XLX = Optical fiber Option Box interface 1000Base-LX, single-mode
i = any alphanumeric or symbol characters, without relevance to hazardous location protection.

Entity Parameters:

X30: PB, power button (X30-1) connected parallel, GND (X20-2, X30-3, X30-4):

Max. output voltage	U_o	=	5.36	VDC	
Max. output current	I_o	=	46	mA	
Max. output power	P_o	=	0.061	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	65	10	µF
Max. external inductance	L_o	=	1	20	µH

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

X31: Fan power (X31-1), (X31-3) each circuit, GND (X31-2, X31-4):

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Canadian Certificate Of Conformity No: FM16CA0141X

Max. output voltage	U_o	=	15.75	VDC	
Max. output current	I_o	=	189	mA	
Max. output power	P_o	=	1.092	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	0.290	0.478	µF
Max. external inductance	L_o	=	100	20	µH

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

X32: Barcode / reader 10.4V power (X32-1), GND (X32-3):

Max. output voltage	U_o	=	10.4	VDC	
Max. output current	I_o	=	391	mA	
Max. output power	P_o	=	2.253	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	2.52	1.2	µF
Max. external inductance	L_o	=	20	100	µH

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

X32: Barcode / reader 5.36V power (X32-2), GND (X32-3):

Max. output voltage	U_o	=	5.36	VDC	
Max. output current	I_o	=	420	mA	
Max. output power	P_o	=	1.213	W	
Trapezoidal output characteristics					
Max. external capacitance	C_o	=	65	45	µF
Max. external inductance	L_o	=	1	2	µH

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

X32: Barcode / reader data Terminal 5 TXD (X32-5), 4 RXD (X32-4) each circuit, 3 GND (X32-3):

Max. output voltage	U_o	=		
between RXD and GND, resp. TXD and GND			±5.35	VDC
between RXD and TXD			±10.70	VDC
Effective internal capacitance	C_i	=	negligible	
Effective internal inductance	L_i	=	negligible	
Max. output current	I_o	=	16	mA
Max. output power	P_o	=	0.022	W
Max. input voltage	U_i	=	±12.5	VDC
Trapezoidal output characteristics				
Max. external capacitance	C_o	=	2.23	2.23 µF
Max. external inductance	L_o	=	1	20 µH

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

Note: The external capacitances and inductances were calculated for the maximum voltage of 10.7 V. If only one of the two signals RXD or TXD is connected, only a reduced voltage of 5.35 V has to be considered. Therewith, the following values are permissible:

Max. external capacitance C_o = *65uF*
for max. external inductance L_o = *1uH*
or
Max. external capacitance C_o = *45uF*
for max. external inductance L_o = *2uH*

X33 / X34: USB KB/M terminals + (X33/34-1), D- (X33/34-2), D+ (X33/34-3), GND (X33/34-4):

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Canadian Certificate Of Conformity No: FM16CA0141X

Max. output voltage	U_o	=	5.36	VDC				
Max. output current	I_o	=	249.85	mA				
Max. output power	P_o	=	0.518	W				
Trapezoidal output characteristics								
Max. external capacitance	C_o	=	65	46	32	25	21	µF
Max. external inductance	L_o	=	0.68	1.68	2.68	3.68	4.68	µH

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

X35: USB terminals + (X35-1), D- (X35-2), D+ (X35-3), GND (X35-4):

Max. output voltage	U_o	=	5.36	VDC				
Max. output current	I_o	=	1.264	A				
Max. output power	P_o	=	2.949	W				
Trapezoidal output characteristics								
Max. external capacitance	C_o	=	65	44	30	23	19	µF
Max. external inductance	L_o	=	0.68	1.68	2.68	3.68	4.68	µH

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

13. **Specific Conditions of Use:**

1. The intrinsic safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist.
2. For devices with wireless interface (characters W02, W05, W22, W55 or W25 in the type code):
   The maximum radio frequency power threshold at the antennas connected to the interfaces X36 and X37 shall not exceed the admissible value of 2W for Group IIC.
   The calculation of this should be taken into account the output power of the transmitter (X36 / X37), the gain of the antenna and the losses in the cable.
3. The intrinsic safe circuits at X36 and X37 are connected to earth. The antennas connected to the interface must be installed in accordance with earthing requirements of the National Electric Code ANSI/NFPA 70.
4. The covers of the connection compartments are equipped with cable glands and blind plugs.
   Optionally they can be equipped with plugs and sockets and switches.
   This equipment has to fulfill IP66 and be separately certified for the respective type of protection.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

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SCHEDULE

Canadian Certificate Of Conformity No: FM16CA0141X

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
31st March 2017	Original Issue.
26th November 2017	Supplement 1: Report Reference: – 3062946 dated 26th November 2017 Description of the Change: Adds three alternate RFID card reader types, add a new isolator RF interface for interface X36 / X37, update FO holder revision, update 4 PCB revisions, update assessment to current standards.

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6 Indian certification

6.1 BIS certificate

6.1.1 ET-4x8

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

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Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi – 110002
दूरभाष/Phone: +91-11-23230856/2323010131/23233375/23239402
ई-मेल/E-mail: registration@bis.gov.in
वेबसाईट/Website: https://bis.gov.in/, https://www.crsbis.in/BIS/

Our Ref: REGISTRATION/CRS 2022-2596/R-41228087 Date:18-10-2022

Inclusion Id: 62030

Subject :Inclusion of Additional Model(s)

MANUFACTURING UNIT :	R.Stahl Hmi Systems Gmbh ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829 office@stahl-hmi.de 49221768061000	

Dear Sir,

1. This has reference to your request for inclusion of models of **"Automatic Data Processing Machine" as per IS 13252(Part 1):2010/ IEC 60950-1 : 2005 in Licence No. R-41228087** already granted to you which is valid upto 26-06-2024.

2. It is intimated that the additional Models as per details given below have been agreed to be included in your scope of Licence. **R-41228087 w.e.f. 18-10-2022:**

Product Category	Automatic Data Processing Machine
Product Name	ALL IN ONE PC (ADPM)
IS No.	IS 13252(Part 1):2010/ IEC 60950-1 : 2005
Brand (As Declared by Manufacturer):	STAHL
Inclusion of Additional Models **(w.e.f. 18-10-2022)**	ET-438-2FX-AC, ET-438-2TX-AC,ET-498-2FX-AC, ET-498-2TX-AC
Factory Address	ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829

3. Other terms and conditions of the licence shall remain same.

4. This letter is being issued with the approval of competent authority.

Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,
(Saksham Vasudev)
Scientist-B
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

Note: This is a system generated letter. Hence signature is not required.
To verify authentication of letter, kindly scan the QR code on this letter.

For details information on BIS, consult the e-BIS Portal (www.manakonline. in).
Please use BIS CARE APP for verification of ISI-marked goods and hallmarked gold jewellery.

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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ई–मेल/E-mail: registration@bis.gov.in
वेबसाईट/Website: https://bis.gov.in/, https://www.crsbis.in/BIS/

Our Ref: REGISTRATION/CRS 2022-2596/R-41228087 Date:17-10-2022

Inclusion Id: 62002

Subject :Inclusion of Additional Model(s)

MANUFACTURING UNIT :	R.Stahl Hmi Systems Gmbh ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829 office@stahl-hmi.de 49221768061000	

Dear Sir,

1. This has reference to your request for inclusion of models of **"Automatic Data Processing Machine" as per IS 13252(Part 1):2010/ IEC 60950-1 : 2005 in Licence No. R-41228087** already granted to you which is valid upto 26-06-2024.

2. It is intimated that the additional Models as per details given below have been agreed to be included in your scope of Licence. **R-41228087 w.e.f. 17-10-2022:**

Product Category	Automatic Data Processing Machine
Product Name	ALL IN ONE PC (ADPM)
IS No.	IS 13252(Part 1):2010/ IEC 60950-1 : 2005
Brand (As Declared by Manufacturer):	STAHL
Inclusion of Additional Models **(w.e.f. 17-10-2022)**	ET-438-2FX-DC,ET-438-2TX-DC,ET-498-2FX-DC,ET-498-2TX-DC
Factory Address	ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829

3. Other terms and conditions of the licence shall remain same.

4. This letter is being issued with the approval of competent authority.

Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,
(Sundeep Kumar)
Sc. D
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

Note: This is a system generated letter. Hence signature is not required.
To verify authentication of letter, kindly scan the QR code on this letter.

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6.1.2 ET-5x8

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(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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Our Ref: REGISTRATION/CRS 2022-2596/R-41228087 Date:07-02-2023

Inclusion Id: 65306

Subject :Inclusion of Additional Model(s)

MANUFACTURING UNIT :	R.Stahl Hmi Systems Gmbh ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829 office@stahl-hmi.de 49221768061000	

Dear Sir,

1. This has reference to your request for inclusion of models of **"Automatic Data Processing Machine" as per IS 13252(Part 1):2010/ IEC 60950-1 : 2005 in Licence No. R-41228087** already granted to you which is valid upto 26-06-2024.

2. It is intimated that the additional Models as per details given below have been agreed to be included in your scope of Licence. **R-41228087 w.e.f. 07-02-2023:**

Product Category	Automatic Data Processing Machine
Product Name	ALL IN ONE PC (ADPM)
IS No.	IS 13252(Part 1):2010/ IEC 60950-1 : 2005
Brand (As Declared by Manufacturer):	STAHL
Inclusion of Additional Models **(w.e.f. 07-02-2023)**	ET-538-2FX-AC, ET-538-2FX-DC, ET-538-2TX-AC, ET-538-2TX-DC,ET-598-2FX-AC, ET-598-2FX-DC, ET-598-2TX-AC,ET-598-2TX-DC
Factory Address	ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE COLOGNE,Germany-50829

3. Other terms and conditions of the licence shall remain same.

4. This letter is being issued with the approval of competent authority.

Kindly acknowledge receipt of this letter.

Thanking you,

Yours faithfully,
(Sonali Gupta)
Scientist-B
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

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6.2 BIS certificate renew 2024

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
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दूरभाष/Phone: +91-11-23230856/2323010131/23233375/23239402
ई–मेल/E-mail: registration@bis.gov.in
वेबसाईट/Website: https://bis.gov.in/, https://www.crsbis.in/BIS/

Our Ref: REGISTRATION /CRS-2022-2596/R-41228087

Dated: 2024-04-08 11:49:14

RENEWAL ID : 25245

Subject : RENEWAL OF LICENCE R-41228087 AS PER IS 13252(Part 1):2010/ IEC 60950-1 : 2005

R.Stahl Hmi Systems Gmbh
ADOLF-GRIMME-ALLEE 8, 50829 COLOGNE
COLOGNE, Germany, 50829

Dear Sir/Madam,

With reference to your online application dated 08-04-2024 for renewal of the above mentioned licence; this is to inform you that the same has been renewed from **27-06-2024** to **26-06-2026**.

It may be noted that the said licence granted under clause (b) of sub section (2) of section 13 of the Act shall *expire* at the end of the period for which it is granted unless renewed or its renewal is deferred. You are, therefore, requested to apply for next renewal to BIS within three months before the expiration of the licence.

Thanking you.

Yours faithfully,

Registration Department
Bureau of Indian Standards,
9, Bahadur Shah Zafar Marg,
New Delhi-110002.
Telfax : +91-11-23230856
E-mail: registration@bis.gov.in

Note: This is a system generated letter. Hence signature is not required.
To verify authentication of letter, kindly scan the QR code on this letter.

For details information on BIS, consult the e-BIS Portal (www.manakonline. in).
Please use BIS CARE APP for verification of ISI-marked goods and hallmarked gold jewellery.

6.3 PESO certificate

6.3.1 ET-xx8

Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : **explosives@explosives.gov.in**
Phone/Fax No : **0712 -2510248, Fax-2510577**

Approval No : A/P/HQ/TN/104/6416 (P575000) Dated : **06/10/2023**

To,

M/s. R. STAHL HMI Systems GmbH,
Adolf-Grimme Allee 8,Köln
50829
GERMANY

Sub : Approval of Increased Safety, Sand Filled, Intrinsically Safe, Optical Radiation Type Electrical Equipment. under Petroleum Rules 2002- Regarding.

Sir(s),

Please refer to your letter No. **OIN1436119** dated **21/09/2023** on the subject.

The following Ex electrical equipment(s) manufactured by you according to **IEC 60079-0 : 2011, IEC 60079-11 : 2011, IEC 60079-15 : 2010, IEC 60079-28 : 2015, IEC 60079-5 : 2015, IEC 60079-7 : 2015,** standards and covered under **DEKRA EXAM GmbH** Test reports mentioned below is/are approved for use in **Zone 1** of Gas **IIC** hazardous areas coming under the the Petroleum Rules, 2002 administered by this Organization.

Sr. No	Description	Safety Protection	Equipment reference Number	Test Agency			Drawing no
				Name	Certificate No.	Certificate Date	
1	HMI-Series Type ET-xx8-...	Ex eb* q [ia op is Ga] IIC T4 Gb	**P575000/1**	DEKRA EXAM GmbH	IECEx BVS 14.0116X Issue No 2	09/05/2017	As per test report

This Approval is granted subject to observance of the following conditions:-

1)The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the DEKRA EXAM GmbH Test Reports referred to above.

2)The equipment shall be used only with approved type of accessories and associated apparatus.

3)Each equipment shall be marked either by raised lettering cast integrally or by plate attached permanently to the main structure to indicate conspicuously:-
(a) Name of the manufacturer
(b) Name and number by which the equipment is identified.
(c) Number & date of the test report of the DEKRA EXAM GmbH applicable to the equipment.
(d) Equipment reference number of this letter by which use of apparatus is approved.
(e) Protection level.

4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the DEKRA EXAM GmbH Test report and is identical with the one tested and certified at DEKRA EXAM GmbH shall be furnished with each equipment.
5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenence schedule, if any, recommended by DEKRA EXAM GmbH in their test reports and copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its Flame Proof characterestics.
6) The After sales service and maintanance of subject equipment shall be looked after by your representative R.STAHL PRIVATE LIMITED, Plot No. 5 Malrosapuram Main Road Sengundram Indl Area

Conditions of the Approval:-
Ex e protection provided shall be limited up to the termination of cables and glands only.

This approval also covers the permissible variations as approved under the DEKRA EXAM GmbH test reports referred above. This approval is liable to be cancelled if any of the conditions of the approval is violated or not complied with . The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record on annual basis.
The Approval is Valid upto **31/12/2027**

Yours faithfully,

(K. Thiagarajan)
Jt. Chief Controller of Explosives
For Chief Controller of Explosives
Nagpur

Copy to :
1. Jt. Chief Controller of Explosives, South Circle Office, CHENNAI
2. R.STAHL PRIVATE LIMITED,Plot No. 5 Malrosapuram Main Road Sengundram Indl Area

for Chief Controller of Explosives
Nagpur

(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

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7 CNEx certificate

Certificate number: CNEx22.2713X

防爆合格证

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

Manufacturer	R. STAHL HMI Systems GmbH Adolf-Grimme Allee 8, 50829 Köln, Germany
Product	Visualization and Control Unit
Type	xx-*x8-xxxxxx*
Marking	Ex eb q [ia op is Ga] IIC T4 Gb, Ex tb [ia op is Da] IIIC T115℃ Db Ex ec nR [ia op is Ga] IIC T4 Gc, Ex tc [ia op is Da] IIIC T115℃ Dc
Standard(s)	--
Drawing No.	10556015, 10556021, 10556024

The drawings, technical documents and the samples are verified and certified according to standard(s) for safety as below:

GB/T 3836.1-2021	Explosive atmospheres - Part 1: Equipment - General requirements
GB/T 3836.3-2021	Explosive atmospheres - Part 3: Equipment protection by increased safety "e"
GB/T 3836.4-2021	Explosive atmospheres - Part 4: Equipment protection by intrinsic safety "i"
GB/T 3836.7-2017	Explosive atmospheres - Part 7: Equipment protection by powder filling "q"
GB/T 3836.8-2021	Explosive atmospheres - Part 8: Equipment protection by type of protection "n"
GB/T 3836.22-2017	Explosive atmospheres - Part 22: Protection of equipment and transmission system using optical radiation
GB/T 3836.31-2021	Explosive atmospheres - Part 31: :Equipment dust ignition protection by enclosure "t"

Note:

See Annex (10 pages in total).

Director

Date: 2022-10-26

Valid until: 2027-10-25

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NANYANG EXPLOSION PROTECTED ELECTRICAL APPARATUS RESEARCH INSTITUTE
国家防爆电气产品质量检验检测中心
CHINA NATIONAL QUALITY SURVEY AND TEST CENTER FOR EXPLOSION PROTECTED ELECTRICAL PRODUCTS
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Certificate number: CNEx22.2713X

防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

Page 1 of 10

1. This product has been IECEx certified, certificate No. IECEx BVS 14.0116X, issue 2, dated 2017-05-09.
2. Subject and type:

The apparatus of HMI-series **-xx8-... are available in the following variants:

xx	-*x8-	x	x	x	x	x	x*
1	2	3	4	5	6	7	8

1	ET: Version with EPL Gb, Db MT: Version with EPL Gc, Dc
2	3: Display size 1, 4: Display size 2, 5: Display size 2, 6: Display size 2, 7: Display size 2,8: Display size 3, 9: Display size 2
3	Optical interfaces (Ethernet) *TX: 10 / 100 / 1000 BaseTX copper interface, *FX: 100 BaseFX FO multimode *SX: 1000 BaseSX FO multimode, *LX: 1000 BaseLX FO single mode 00: Other interface
4	AC: AC power supply DC: DC power supply
5	Wireless interfaces W02: one 2.4 GHz interface, W05: one 5 GHz interface W22: two 2.4 GHz interfaces, W55: two 5 GHz interfaces W25: one 2.4 GHz and one 5 GHz interface W00: no Wireless interface
6	B1: Variant with Bluetooth B0: Variant without Bluetooth
7	RFID interfaces C1: RFID 13.56 MHz integrated, C2: RFID 2.4 GHz integrated C3: RFID 13.56 MHz MIFARE / DESFire / EV1, CRYPT C4: RFID 13.56 MHz MIFARE / DESFire / EV1, ASCII C5: RFID 13.56 MHz LEGIC, CRYPT C6: RFID 13.56 MHz LEGIC, ASCII C7: RFID 13.56 MHz NFC C0:no RFID integrated
8	Optical interface for the connection of an OptionBox XSX-OptionBox FO multimode interface XLX-OptionBox FO single mode interface X00-No OptionBox interface

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Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

Page 2 of 10

3. Parameters:

1. Non-intrinsically safe circuits

1.1 Terminal block X1

Non-intrinsically safe supply circuit (Power)

Nominal voltage	
for type xx-*x8-xACxxxx*	AC 100...240 V
for type xx-*x8-xDCxxxx*	DC 20... 30 V
Nominal current	
for type xx-*x8-xACxxxx*	≤ 5 A
for type xx-*x8-xDCxxxx*	≤ 8 A
Nominal power	≤ 150 W
Max. input voltage Um	AC 250 V

1.2 Terminal blocks X2 and X3

Non-intrinsically safe interfaces Copper1 (X2) and Copper2 (X3)

Nominal voltage	AC/DC 5 V
Max. input voltage Um	AC 250 V

1.3 Terminal block X4

Non-intrinsically safe circuit DC out

Nominal voltage X4, terminal 1	DC 12 V
Nominal voltage X4, terminal 4	DC 24 V
Max. input voltage Um	AC 250 V

Director:

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Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

1.4 Terminal block X5
Non-intrinsically safe CAN interface (E-Box)

Nominal voltage	AC/DC 5 V
Max. input voltage Um	AC 250 V

1.5 Terminal block X6
Non-intrinsically safe USB interface (E-Box)

Nominal voltage	DC 5 V
Max. input voltage Um	AC 250 V

1.6 Terminal block X7
Non-intrinsically safe RSxxx interface (E-Box)

Nominal voltage	AC/DC 12 V
Max. input voltage Um	AC 250 V

1.7 Terminal block X8
Non-intrinsically safe DVI interface (E-Box)

Nominal voltage	AC/DC 5 V
Max. input voltage Um	AC 250 V

1.8 Terminal block X9
Non-intrinsically safe Audio / Video interface (E-Box)

Nominal voltage	AC/DC 5 V
Max. input voltage Um	AC 250 V

1.9 Terminal block X10
Non-intrinsically safe SATA interface (E-Box)

Nominal voltage	AC/DC 5 V
Max. input voltage Um	AC 250 V

Director

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防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

2 Intrinsically safe circuits level of protection Ex ia IIC resp. Ex ia
2.1 Terminal block X30
for the connection of e.g. a Power Button
Intrinsically safe output PB (Power Button)
Terminals 1(+), 2/3/4(gnd)

Max. output voltage Uo	DC 5.36 V
Max. output current Io	46 mA
Linear output characteristics	
Max. output power Po	61 mW
Max. external capacitance Co	65 µF
for max. external inductance Lo	1 µH
or	
Max. external capacitance Co	10 µF
for max. external inductance Lo	20 µH

2.2 Terminal block X31
for the connection of e.g. up to 2 fans
Intrinsically safe output circuits FAN
Terminals 1(+), 2(gnd) and 3(+), 4(gnd)

for each circuit:	
Max. output voltage Uo	DC 15.75 V
Max. output current Io	189 mA
Trapezoidal output characteristics	
Max. output power Po	1.092 W
Max. external capacitance Co	290 nF
for max. external inductance Lo	100 µH
or	
Max. external capacitance Co	478 nF
for max. external inductance Lo	20 µH

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防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

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2.3 Terminal block X32
for the connection of e.g. a Barcode or Card reader
2.3.1 Intrinsically safe output circuit for the supply of the connected apparatus
The connected apparatus can be supplied either from the „10.4 V-supply circuit or from the“5.4 V”-supply circuit. The terminals 1 and 2 shall not be connected at the same time.

2.3.1.1 Intrinsically safe output circuit “10.4 V”
Terminals 1(+), 3(gnd)

Max. output voltage Uo	DC 10.4 V
Max. output current Io	391 mA
Trapezoidal output characteristics	
Max. output power Po Max.	2.253 W
external capacitance Co	2.52 µF
for max. external inductance Lo	20 µH
or	
Max. external capacitance Co	1.2 µF
for max. external inductance Lo	100 µH

2.3.1.2 Intrinsically safe output circuit “5.4 V”
Terminals 2(+), 3(gnd)

Max. output voltage U_o	DC 5.36 V
Max. output current I_o	420 mA
Trapezoidal output characteristics	
Max. output power Po	1.213 W
Max. external capacitance Co	65 µF
for max. external inductance Lo	1 µH
or	
Max. external capacitance C_o	45 µF
max. external inductance L_o	2 µH

Director

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Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

2.3.2 Intrinsically safe data circuit
Terminals 4(TXD), 5(RXD), 3(gnd)

Max. input voltage U_i	±12.5 V
Effective internal capacitance C_i	negligible
Effective internal inductance L_i	negligible
Max. output voltage U_o	
RXD-gnd resp. TXD-gnd	DC ±5.35 V
RXD-TXD	DC ±10.7 V
Max. output current Io	±16 mA
Linear output characteristics	
Max. output power P_o	22 mW
Max. external capacitance Co	2.23 µF
for max. external inductance Lo	1 µH
or	
Max. external capacitance C_o	2.23 µF
for max. external inductance L_o	20 µH

Note:
The external capacitances and inductances were calculated for the maximum voltage of 10.7 V.
If only one of the two signals RXD or TXD is connected, only a reduced voltage of 5.35 V has to be considered. Therewith, the following values are permissible:

Max. external capacitance C_o	65 µF
for max. external inductance L_o	1 µH
or	
Max. external capacitance Co	45 µF
for max. external inductance L_o	2 µH

Director

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防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

2.4 Terminal blocks X33 and X34
for the connection of e.g. a Keyboard (X33) resp. a Mouse (X34)
Terminals 1(+), 2(D-), (D+), 4(gnd)
For each terminal block:

Max. output voltage U_o	DC 5.36 V
Max. output current I_o	249.85 mA
Max. output power P_o	518 mW
Max. external capacitance Co	65 µF
for max. external inductance Lo	0.68 µH
or	
Max. external capacitance C_o	46 µF
for max. external inductance L_o	1.68 µH
or	
Max. external capacitance C_o	32 µF
for max. external inductance L_o	2.68 µH
or	
Max. external capacitance C_o F	25 µ
for max. external inductance L_o	3.68 µH
or	
Max. external capacitance C_o	21 µF
for max. external inductance L_o	4.68 µH

Director

Date: 2022-10-26

Valid until: 2027-10-25

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防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

2.5 Terminal block/USB-socket X35
for the connection of e.g. an USB-Memory Stick
The connection can be done via terminal block X351 or USB-socket X352.
Terminals 1(+), 2(D-), 3(D+), 4(gnd)

Max. output voltage Uo	DC 5.36 V
Max. output current Io	1.264 A
Max. output power Po	2.949 W
Max. external capacitance Co	65 µF
for max. external inductance Lo	0.68 µH
or	
Max. external capacitance Co	44 µF
for max. external inductance Lo	1.68 µH
or	
Max. external capacitance Co	30 µF
for max. external inductance Lo	2.68 µH
or	
Max. external capacitance C_o	23 µF
for max. external inductance L_o	3.68 µH
or	
Max. external capacitance C_o	19 µF
for max. external inductance L_o	4.68 µH

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Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

2.6 Sockets X36 (RF1), X37 (RF2)
to be connected to an external antenna

Radio frequency	2.4 resp. 5 GHz

The radio frequency depends on the type (characters W02, W05, W22, W55, W25 resp. W00 in type code, see clause 1).

Effective radio frequency power of the used transmitter	17 dBm
resp.	50 mW

The maximum radio frequency power of the antenna is calculated as product of the effective radio frequency power of the transmitter and the antenna gain of the used antenna (losses of the cable between X36 resp. X37 and antenna may be considered).
The maximum radio frequency power shall not exceed the maximum permissible radio frequency power 2 W for Group IIC.

3 Fiber optic interfaces:

X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx-*x8-FXxxxxx*:

Wavelength	1310 nm
Nominal optical radiated power	0.344 mW
Max. optical radiated power under fault conditions	35 mW

X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx-*x8-SXxxxxx*:

Wavelength	850 nm
Nominal optical radiated power	0.22 mW
Max. optical radiated power under fault conditions	35 mW

X20 / X21: Fiber 1 / Fiber 2 for HMI series type xx-*x8-LXxxxxx*:

Wavelength	1310 nm
Nominal optical radiated power	0.22 mW
Max. optical radiated power under fault conditions	35 mW

X22: Fiber 3 for HMI series type xx-*x8-xxxxxXSX*:

Wavelength	850 nm
Nominal optical radiated power	0.22 mW
Max. optical radiated power under fault conditions	35 mW

X22: Fiber 3 for HMI series type xx-*x8-xxxxxXLX*:

Wavelength	1310 nm
Nominal optical radiated power	0.22 mW
Max. optical radiated power under fault conditions	35 mW

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CNEX
国家防爆

Certificate number: CNEx22.2713X

防爆合格证 （附页）

Electrical Apparatus for Explosive Atmospheres

CERTIFICATE OF CONFORMITY

4. Ex marking:

ET-*x8-xxxxxx*： Ex eb q [ia op is Ga] IIC T4 Gb, Ex tb [ia op is Da] IIIC T115℃ Db

MT-*x8-xxxxxx*： Ex ec nR [ia op is Ga] IIC T4 Gc, Ex tc [ia op is Da] IIIC T115℃ Dc

5. Specific conditions of safety use:

1) The ambient temperature range is limited to -40℃ up to +70℃

2) The intrinsically safe circuits are connected to earth. Along the intrinsically safe circuits,potential equalization must exist.

3) For variants with wireless interface (characters W 02, W 05, W 22, W 55 or W 25 in type code):

The maximum radio frequency power threshold at the antennas connected to the interfaces X36 and X37 shall not exceed the admissible value of 2 W for Group IIC. The calculation of this should take into account the output power of the transmitter (X36 / X37), the gain of the antenna and the losses in the cable.

The intrinsically safe circuits at X36 und X37 are connected to earth. The antennas connected to the interface must be installed in accordance with earthing requirements of GB/T3836.15.

4) The covers of the connection compartments are equipped with cable glands and blind plugs.

Optionally they can be equipped with plugs and sockets and switches.

This equipment has to fulfill IP66 and be separately certified for the respective type of protection.

5) The xx-*x8-xxxxxx* can be mounted in an additional enclosure with a suitable cut out via a xx-*x8-xxxxxx* mounting frame kit which is approved for mounting in an Ex eb, Ex p or Ex tb enclosure.

Director

Date: 2022-10-26

Valid until: 2027-10-25

Ex CQST

南阳防爆电气研究所
NANYANG EXPLOSION PROTECTED ELECTRICAL APPARATUS RESEARCH INSTITUTE
国家防爆电气产品质量检验检测中心
CHINA NATIONAL QUALITY SURVEY AND TEST CENTER FOR EXPLOSION PROTECTED ELECTRICAL PRODUCTS
Address: No.20,North Zhongjing Rd,Nanyang,Henan(473008),P.R.China
Tel:0377 63259564 Fax:0377 63208175 Web:www.china-ex.com

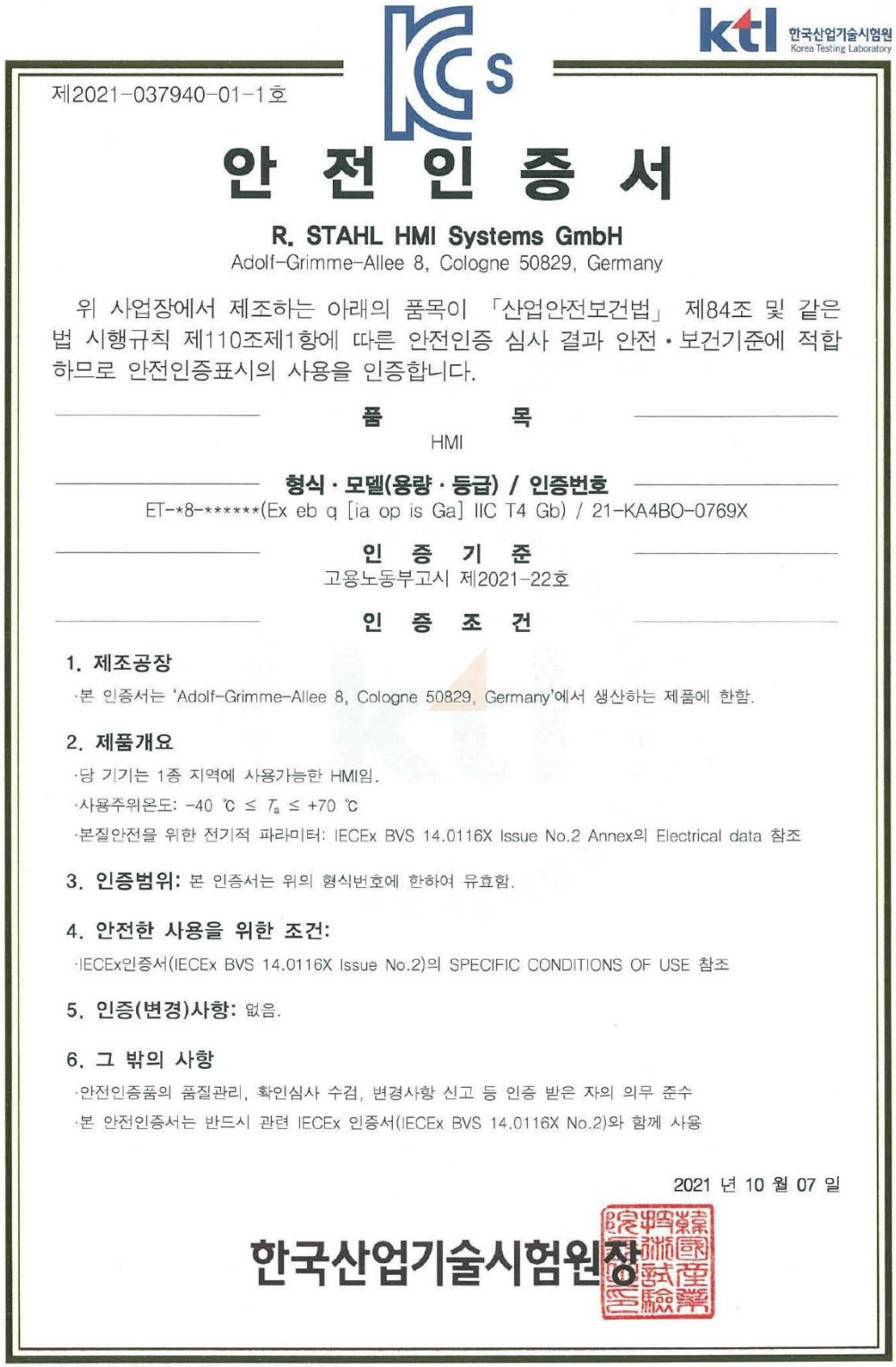
注：本证书仅对与认可文件和样品一致的产品有效。 登录网站或关注公众号查询真伪

Note:This certificate is only valid for products which are identical with the sample(s) tested and verified.Holder of this certificate has the responsibility to ensure the products comply with relevant standards.

8 Korean certification

8.1 KCS certificates

8.1.1 ET-xx8 area gas



제2021-037940-01-1호

ktl 한국산업기술시험원 Korea Testing Laboratory

안 전 인 증 서

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

위 사업장에서 제조하는 아래의 품목이 「산업안전보건법」 제84조 및 같은 법 시행규칙 제110조제1항에 따른 안전인증 심사 결과 안전·보건기준에 적합하므로 안전인증표시의 사용을 인증합니다.

품 목
HMI

형식·모델(용량·등급) / 인증번호
ET-*8-******(Ex eb q [ia op is Ga] IIC T4 Gb) / 21-KA4BO-0769X

인 증 기 준
고용노동부고시 제2021-22호

인 증 조 건

1. 제조공장
·본 인증서는 'Adolf-Grimme-Allee 8, Cologne 50829, Germany'에서 생산하는 제품에 한함.

2. 제품개요
·당 기기는 1종 지역에 사용가능한 HMI임.
·사용주위온도: -40 ℃ ≤ T_a ≤ +70 ℃
·본질안전을 위한 전기적 파라미터: IECEx BVS 14.0116X Issue No.2 Annex의 Electrical data 참조

3. 인증범위: 본 인증서는 위의 형식번호에 한하여 유효함.

4. 안전한 사용을 위한 조건:
·IECEx인증서(IECEx BVS 14.0116X Issue No.2)의 SPECIFIC CONDITIONS OF USE 참조

5. 인증(변경)사항: 없음.

6. 그 밖의 사항
·안전인증품의 품질관리, 확인심사 수검, 변경사항 신고 등 인증 받은 자의 의무 준수
·본 안전인증서는 반드시 관련 IECEx 인증서(IECEx BVS 14.0116X No.2)와 함께 사용

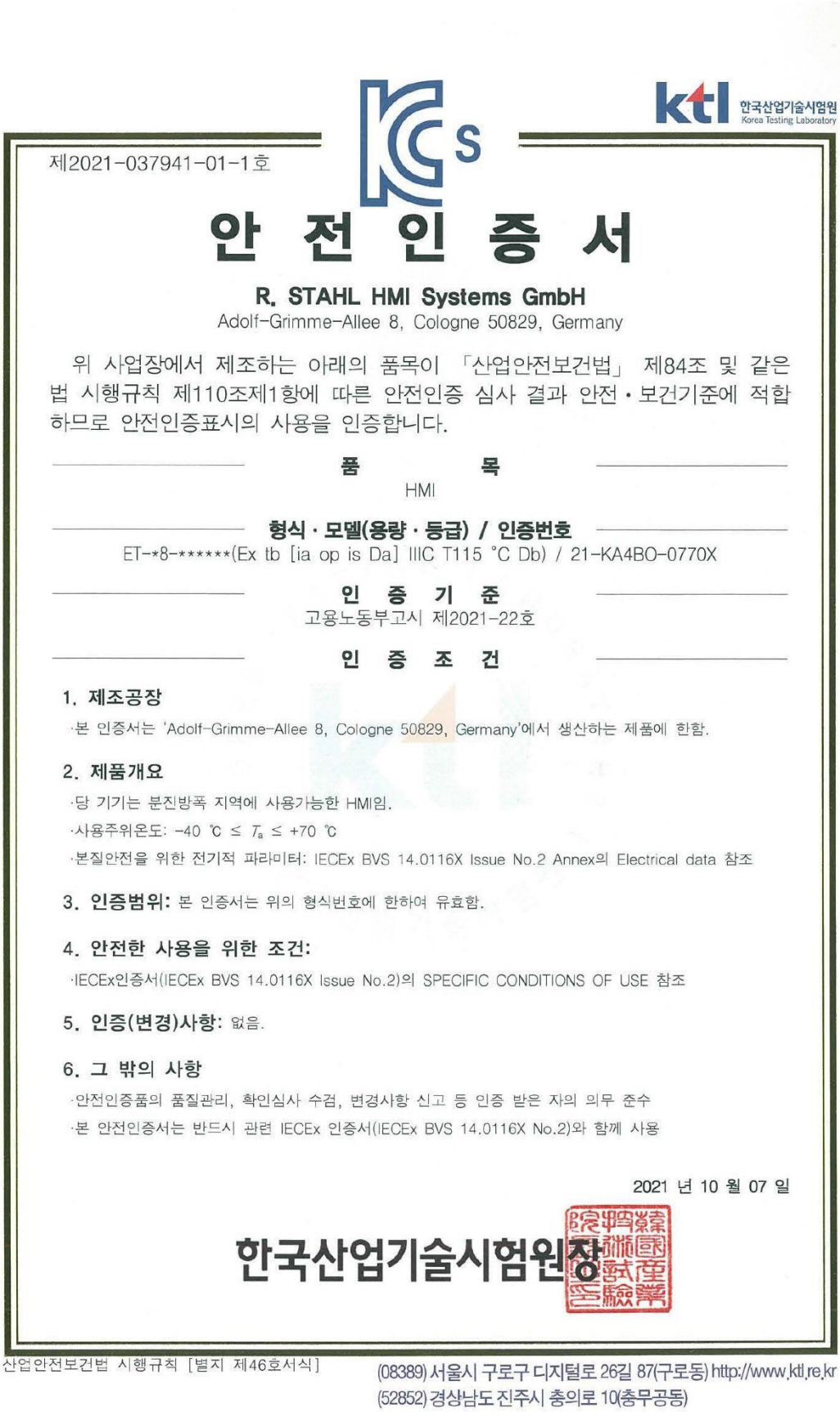
2021 년 10 월 07 일

한국산업기술시험원장

산업안전보건법 시행규칙 [별지 제46호서식]

(08389) 서울시 구로구 디지털로 26길 87(구로동) http://www.ktl.re.kr
(52852) 경상남도 진주시 충의로 10(충무공동)

8.1.2 ET-xx8 area dust



제2021-037941-01-1호

안 전 인 증 서

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

위 사업장에서 제조하는 아래의 품목이 「산업안전보건법」 제84조 및 같은 법 시행규칙 제110조제1항에 따른 안전인증 심사 결과 안전·보건기준에 적합하므로 안전인증표시의 사용을 인증합니다.

품 목
HMI

형식·모델(용량·등급) / 인증번호
ET-*8-******(Ex tb [ia op is Da] IIIC T115 °C Db) / 21-KA4BO-0770X

인 증 기 준
고용노동부고시 제2021-22호

인 증 조 건

1. **제조공장**
·본 인증서는 'Adolf-Grimme-Allee 8, Cologne 50829, Germany'에서 생산하는 제품에 한함.

2. **제품개요**
·당 기기는 분진방폭 지역에 사용가능한 HMI임.
·사용주위온도: -40 ℃ ≤ T_a ≤ +70 ℃
·본질안전을 위한 전기적 파라미터: IECEx BVS 14.0116X Issue No.2 Annex의 Electrical data 참조

3. **인증범위:** 본 인증서는 위의 형식번호에 한하여 유효함.

4. **안전한 사용을 위한 조건:**
·IECEx인증서(IECEx BVS 14.0116X Issue No.2)의 SPECIFIC CONDITIONS OF USE 참조

5. **인증(변경)사항:** 없음.

6. **그 밖의 사항**
·안전인증품의 품질관리, 확인심사 수검, 변경사항 신고 등 인증 받은 자의 의무 준수
·본 안전인증서는 반드시 관련 IECEx 인증서(IECEx BVS 14.0116X No.2)와 함께 사용

2021 년 10 월 07 일

한국산업기술시험원장

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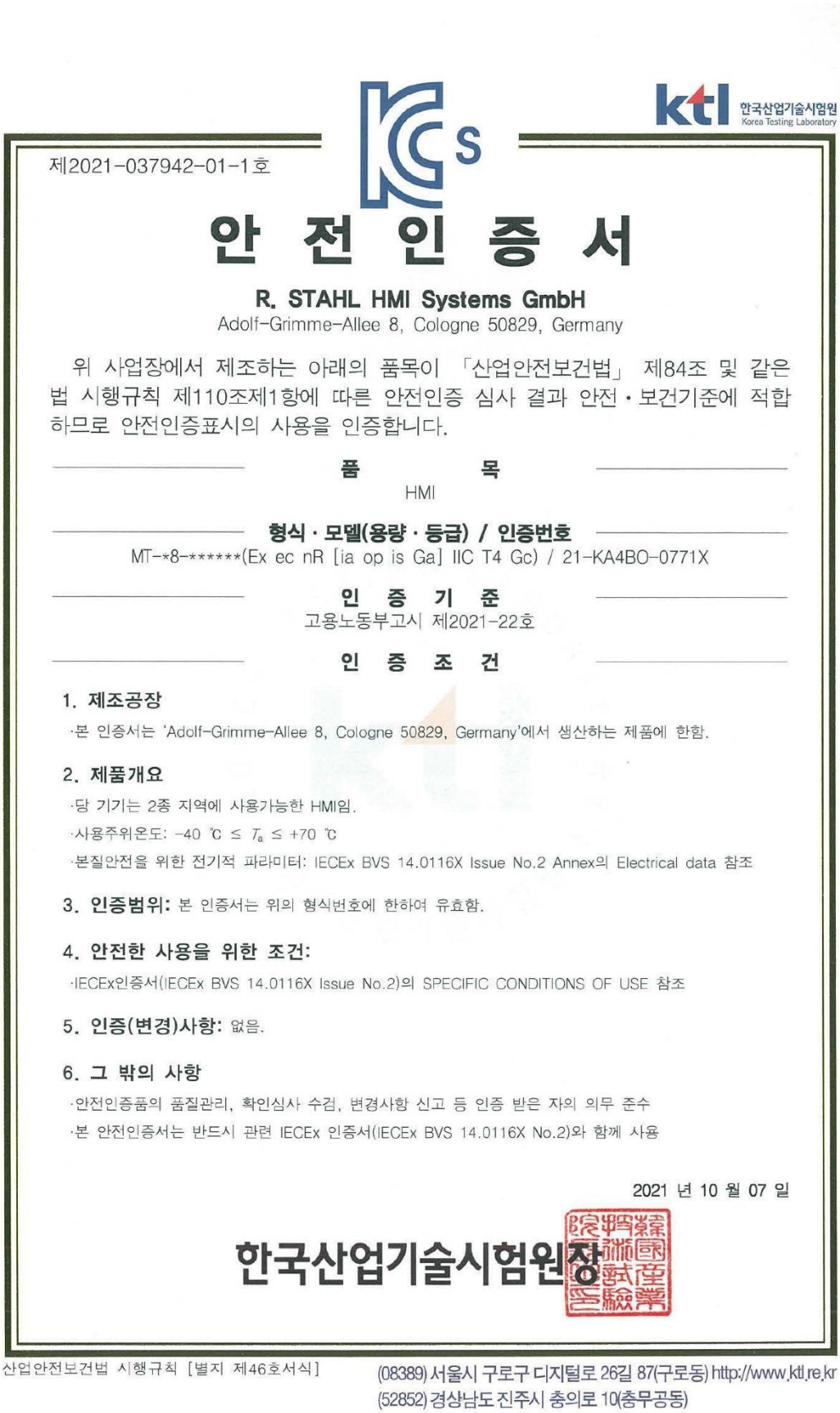
(52852) 경상남도 진주시 충의로 10(충무공동)

8.1.3 MT-xx8 area gas



제2021-037942-01-1호

안 전 인 증 서

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

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품 목
HMI

형식·모델(용량·등급) / 인증번호
MT-*8-******(Ex ec nR [ia op is Ga] IIC T4 Gc) / 21-KA4BO-0771X

인 증 기 준
고용노동부고시 제2021-22호

인 증 조 건

1. **제조공장**
·본 인증서는 'Adolf-Grimme-Allee 8, Cologne 50829, Germany'에서 생산하는 제품에 한함.

2. **제품개요**
·당 기기는 2종 지역에 사용가능한 HMI임.
·사용주위온도: -40 ℃ ≤ T_a ≤ +70 ℃
·본질안전을 위한 전기적 파라미터: IECEx BVS 14.0116X Issue No.2 Annex의 Electrical data 참조

3. **인증범위:** 본 인증서는 위의 형식번호에 한하여 유효함.

4. **안전한 사용을 위한 조건:**
·IECEx인증서(IECEx BVS 14.0116X Issue No.2)의 SPECIFIC CONDITIONS OF USE 참조

5. **인증(변경)사항:** 없음.

6. **그 밖의 사항**
·안전인증품의 품질관리, 확인심사 수검, 변경사항 신고 등 인증 받은 자의 의무 준수
·본 안전인증서는 반드시 관련 IECEx 인증서(IECEx BVS 14.0116X No.2)와 함께 사용

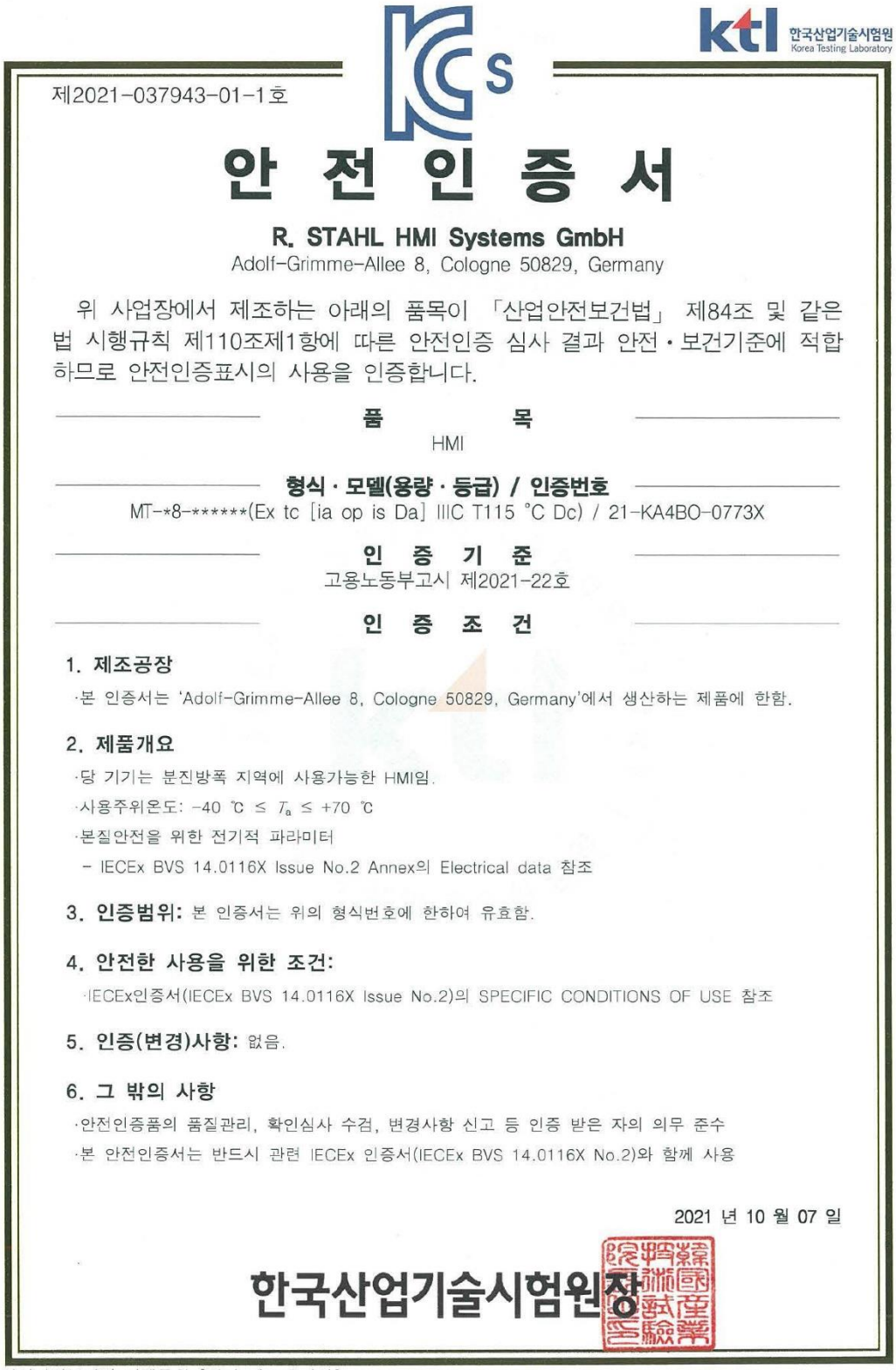
2021 년 10 월 07 일

한국산업기술시험원장

산업안전보건법 시행규칙 [별지 제46호서식]

(08389) 서울시 구로구 디지털로 26길 87(구로동) http://www.ktl.re.kr
(52852) 경상남도 진주시 충의로 10(충무공동)

8.1.4 MT-xx8 area dust



제2021-037943-01-1호

안 전 인 증 서

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Adolf-Grimme-Allee 8, Cologne 50829, Germany

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품 목
HMI

형식·모델(용량·등급) / 인증번호
MT-*8-******(Ex tc [ia op is Da] IIIC T115 °C Dc) / 21-KA4BO-0773X

인 증 기 준
고용노동부고시 제2021-22호

인 증 조 건

1. 제조공장
·본 인증서는 'Adolf-Grimme-Allee 8, Cologne 50829, Germany'에서 생산하는 제품에 한함.

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·당 기기는 분진방폭 지역에 사용가능한 HMI임.
·사용주위온도: -40 ℃ ≤ T_a ≤ +70 ℃
·본질안전을 위한 전기적 파라미터
- IECEx BVS 14.0116X Issue No.2 Annex의 Electrical data 참조

3. **인증범위:** 본 인증서는 위의 형식번호에 한하여 유효함.

4. 안전한 사용을 위한 조건:
·IECEx인증서(IECEx BVS 14.0116X Issue No.2)의 SPECIFIC CONDITIONS OF USE 참조

5. **인증(변경)사항:** 없음.

6. 그 밖의 사항
·안전인증품의 품질관리, 확인심사 수검, 변경사항 신고 등 인증 받은 자의 의무 준수
·본 안전인증서는 반드시 관련 IECEx 인증서(IECEx BVS 14.0116X No.2)와 함께 사용

2021 년 10 월 07 일

한국산업기술시험원장

산업안전보건법 시행규칙 [별지 제46호서식]

(08389) 서울시 구로구 디지털로 26길 87(구로동) http://www.ktl.re.kr
(52852) 경상남도 진주시 충의로 10(충무공동)

8.2 KCC certificate

6B56-363C-F851-5324

방송통신기자재등의 적합등록 필증

Registration of Broadcasting and Communication Equipments

상호 또는 성명 *Trade Name or Registrant*	R. STAHL HMI Systems GmbH
기자재명칭(제품명칭) *Equipment Name*	EX proofed panel PC
기기부호/추가 기기부호 *Equipment code /Additional Equipment code*	RFID3 / LARN8
기본모델명 *Basic Model Number*	ET-598-2TX-231531F000M-B30100000000
파생모델명 *Series Model Number*	MT-598-2TX-231531F000M-B30100000000, MT-598-2TX-231531L000M-B30100000000, ET-598-2TX-231531L000M-B30100000000
등록번호 *Registration No.*	R-R-RS3-RSTAHL-HMI-01
제조자/제조국가 *Manufacturer/Country of Origin*	R. STAHL HMI Systems GmbH / 독일
등록연월일 *Date of Registration*	2022-01-06
기타 *Others*	

위 기자재는「전파법」제58조의2 제3항에 따라 등록되었음을 증명합니다.

It is verified that foregoing equipment has been registered under the Clause 3, Article 58-2 of Radio Waves Act.

2022년(Year) 01월(Month) 06일(Day)

국립전파연구원장 국립전파연구원장인

Director General of National Radio Research Agency

※ 적합등록 방송통신기자재는 반드시 **"적합성평가표시"** 를 부착하여 유통하여야 합니다.
위반시 과태료 처분 및 등록이 취소될 수 있습니다.

8.3 Customer confirmation letter

Customer confirmation letter
납품처 확인서

1. Delivery Overview/ 납품 개요

   - Target company name / 대상 회사명: (exporter/(수출자)
   - Usage / 용도: (product name / 제품명)
   - Model and quantity / 모델 및 수량:

     (product number / type number) - (quantity) / (제품 품번 / 타입번호) - (수량)

2. Overview of domestic imports of products / 제품의 국내 수입 개요

   The above (product name, model, quantity) are imported from (company name) and then delivered to the supplier (company name) (if there is an intermediary seller), the products are all overseas (country name) will be re-exported.
   상기의 (제품명, 모델, 수량)은 제조사(회사명), (중간판매상이 있을 경우 기입,) 납품처 (회사명) 로 납품하는 것으로서, 해당 제품은 모두 해외(나라이름)로 재 수출되는 것입니다.

3. According to the contract between (importer), (if there is an intermediary seller), and the supplier (company name), the product has been imported, and according to the contract of the (supplier), all are re-exported abroad. I will confirm.

   (수입자), (중간판매상 있을경우 기입), 납품처(회사명) 간 계약에 따라, 해당 제품 수입진행 하였으며, (납품처)의 계약서에 따라, 모두 해외로 재 수출되는 것임을 확인 드립니다.

   Year Month Day / 년 월 일
   Manager / 담당자 :
   contact / 연락처 :
   (Company Name) / (회사명)

4. Attachments:

- Customer PO / 고객 PO
- Owner PO of customer (in case of re-exporter) / 고객의 소유자 PO(재수출자의 경우)
- Product photo / 제품 사진
- Catalogue / 카탈로그
- Invoice / Packing list / B/L / 송장 / 포장 목록 / B/L
- Business registration / 사업자 등록

9 ABS certificate

Electronically published by ABS Hamburg.
Reference T2166269, dated 22-OCT-2021.

CERTIFICATE NUMBER	21-2166269-PDA
EFFECTIVE DATE	22-Oct-2021
EXPIRY DATE	21-Oct-2026
ABS TECHNICAL OFFICE	Hamburg Engineering Department

CERTIFICATE OF

Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

R. STAHL HMI SYSTEMS GMBH

located at

EMC LABORATORY, ADOLF-GRIMME-ALLEE 8, D-50829 KOELN, Germany

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product:	**Monitor, Panel PC and TFT Monitor Units**
Model:	**Shark HMI** **ET/ MT-4x8/ -5x8/ -x38/ x98**
Endorsements:	
Tier:	**5 - Unit Certification Required**

This Product Design Assessment (PDA) Certificate remains valid until 21/Oct/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Efstratios Maliatsos, Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in the certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

Certificate of Product Design Assessment Rev.3
of 1

Page 1

Sensitivity: Internal & Restricted

Electronically published by ABS Hamburg.
Reference T2166269, dated 22-OCT-2021.

R. STAHL HMI SYSTEMS GMBH
EMC LABORATORY
ADOLF-GRIMME-ALLEE 8
D-50829 KOELN
Germany
Telephone: +49 (0)221 59808-200
Fax: +49 (0)221 59808-260
Email: office@stahl-hmi.de
Web: www.stahl-hmi.de

Tier: 5 - Unit Certification Required

Product: **Monitor, Panel PC and TFT Monitor Units**
Model: **Shark HMI**
ET/ MT-4x8/ -5x8/ -x38/ x98
Endorsements:

Intended Service:
Panels PC for monitoring and control functions on AMS, ACC, ACCU, ABCU Classed Vessels.

Description:
Panel PC with touch screen for complex visualization and operator tasks in hazardous areas.

Rating:
Power supply: 24V DC, 100 - 240 V AC
Ambient Temperature: -40° C - +70° C
Degree of protection: IP66 (front and back side)
Explosion proof protection:
Class I, Division 2, Groups A,B,C,D, T4 Ta=-40° C to 70° C, Class II, III, Division 2, Groups F, G, T4 Ta=-40° C to 70° C, Class I, Zone 1, AEx eb q [ia op is Ga] IIC T4 Gb ta=-40° C to 70° C, Class I, Zone 2 AEx nA nR [ia op is Da] IIIC T1 15° C Db Ta=-40° C to 70° C (FM Approval FM16US0278X);
II 2(1) G Ex eb q [ia op is Ga] IIC T4 Gb, II 2(1) D Ex tb [ia op is Da] IIIC T1 15° C Db, II 3(1) G ex ec nR [ia op is Ga] IIC T4 Gc, II 3(1) D Ex tc [ia op is Da] IIIC T1 15° C Dc (BVS 14 ATEX E 134 X)

Service Restriction:
- Unit certification is not required for this product. However, it is required, when this product is used for Computer-Based Systems Category II or III services in 4-9-3/Table 1 of the Marine Vessels Rules or control, monitoring and safety systems of propulsion machinery, propulsion boilers, vital auxiliary pumps and the electrical power generating plant including its prime mover for vessels assigned with ACC, ACCU and ABCU notations.
- If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:
- Each particular application/ installation and the user operating software is to be specifically approved in conjunction with the relevant system in which the units are being used.
- The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
- This certificate covers hardware only. When this product is used as a part of computer-based system category I or II or III, "Software Tests and Documentation" listed in 4-9-3/Table 2 of the Marine Vessels Rules are to be submitted.

Notes/Drawing/Documentation:
Drawing No. 31, 1_General Documents
Drawing No. 32, 2_Docs of Article
Drawing No. 33, Manual
Drawing No. 34, Test Report, EMC-1, 10/07/2017
Drawing No. 35, Test Report, EMC-2, 29/06/2017
Drawing No. 36, Test Report, Environmental-1, 17/06/2016
Drawing No. 37, Test Report, Environmental-2, 17/06/2016
Drawing No. 38, Test Report, Environmental-3, 16/08/2016
Drawing No. BVS 14 ATEX E 134X, ATEX Certificate

Revalidation 2021

As of 22/Oct/2021Design Assessed **Page 1 of 2**

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Tier: 5 - Unit Certification Required

Drawing No. E200277E1, ET-xx8 SHARK - PHOENIX Testlab EMC Test Report 21-Jan-2021
Drawing No. ETMT-xx8-i5_Monitoring, ETMT-xx8-i5_Monitoring for EMC and Environmental testing_20210128
Drawing No. OI_ET_MT-xx8_de_V_01_01_14, Operating Instructions/TechnicalData-DE
Drawing No. OI_ET_MT-xx8_en_V_01_01_14, Operating Instructions/TechnicalData-EN
Drawing No. TR_20201270011, TR_20201270011_DNVGL-Dry-Heat-Test_20200415
Drawing No. TR_20201270013, TR_20201270013_DNVGL-Cold-Test_20200422
Drawing No. TR_20201270014, TR_20201270014_DNVGL-Damp-Heat-Test_20200608
Drawing No. U211619E1, Panel PC Environmental Test - Phoenix Testlab 18-Aug-2021

Terms of Validity:
This Product Design Assessment (PDA) Certificate remains valid until 21/Oct/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:
Rules for Conditions of Classification, Part I - 2021 - 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
ABS Rules for Building and Classing Marine Vessels Rules (2021): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3/ 1.7, 4-8-3/1.11.1, 4-8-3/1/1.17, 4-9-3/11, 4-9-9/13.1, 4-9-9/Table 1 & Table 2

ABS Rules for Conditions of Classification, 2021 - Offshore Units and Structures: 1-1-4/9.7, 1-1-A2 & 1-1-A3,
ABS Rules for Building and Classing Mobile Offshore Units (2021): 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-3-1/11, 4-3-1/15, 4-3-1/17

National:
NA

International:
NA

Government:
NA

EUMED:
NA

OTHERS:
NA

10 DNV certificate

DNV

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001E6
Revision No:
2

This is to certify:

That the Peripheral Equipment

with type designation(s)
ET-438, ET-498, ET-538, ET-598, MT-438, MT-498, MT-538, MT-598

Issued to
R. Stahl HMI Systems GmbH
Köln, Nordrhein-Westfalen, Germany

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
ET-438	D	B	A	B*	C
ET-498	D	B	A	B*	C
ET-538	D	B	A	B*	C
ET-598	D	B	A	B*	C
MT-438	D	B	A	B*	C
MT-498	D	B	A	B*	C
MT-538	D	B	A	B*	C
MT-598	D	B	A	B*	C

Issued at **Hamburg** on **2023-05-17**

This Certificate is valid until **2027-11-26**.
DNV local unit: **Essen**

Approval Engineer: **Holger Jansen**

for **DNV**

Digitally Signed By: Papanuskas, Joannis
Location: DNV GL SE Hamburg, Germany

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-020798-3**
Certificate No: **TAA00001E6**
Revision No: **2**

Product description

Type Code Display-Box-Modules:

	Modul Code	xT	-	xx8	-	x	x	x	Bx	Cx	x	-	Dx	Tx	Ox	E0x0
Key Code	**Description**															
ET	Device for Zone 1, Zone 21, EPL Gb, Db															
MT	Device for Zone 2, Zone 22, EPL Gc, Dc															
-	"Delimiter"															
x38	Displaysize 15"															
x98	Displaysize 21,5"															
-	"Trennzeichen"															
x	"Placeholder"															
x	"Placeholder"															
x	"Placeholder"															
B0	No Bluetooth															
B1	Bluetooth integrated															
C0	No integrated reader interface															
C1	Integrated reader interface 13.56 MHz and RFID															
x	"Placeholder"															
-	"Delimiter"															
D0	Display Type TFT															
D1	Display Type Sunlight Readable															
T0	No Touch															
T3	Capacitive Multi-Touch (Glas)															
O0	Outdoor Installation -10° C															
O4	Outdoor Installation -40° C															
E000	Housing Design Exicom with Camera															
E001	Housing Design Siemens															
E010	Housing Design Exicom without Camera															

Continued on next page

DNV

Job Id: **262.1-020798-3**
Certificate No: **TAA00001E6**
Revision No: **2**

Type Code E-Box-Modules:

	Module Code	xT	-	xx8	-	xxX	xC	Wxx	x	x	X00	-	Px	Rx	Mx	Ix
Key Code	**Description**															
ET	Device for Zone 1, Zone 21, EPL Gb, Db															
MT	Device for Zone 2, Zone 22, EPL Gc, Dc															
-	"Delimiter"															
4x8	E-Box SERIES 4x8															
5x8	E-Box SERIES 5x8															
-	"Delimiter"															
1TX	1x 1000Base-TX Copper Ethernet															
2TX	2x 1000Base-TX Copper Ethernet															
2FX	2x 100Base-FX FO Ethernet															
AC	AC Powersupply 100 - 240 VAC															
DC	DC Powersupply 24 VDC															
W00	No WLAN Interface															
W02	WLAN Interface RF 2,4 GHz															
W05	WLAN Interface RF 5 GHz															
W22	WLAN Interface 2x RF 2,4 GHz															
W55	WLAN Interface 2x RF 5 GHz															
W25	WLAN Interface RF 2,4 GHz and 5 GHz															
x	"Placeholder"															
x	"Placeholder"															
X00	Optionsbox															
-	"Delimiter"															
P2	Processor AMD GX-217GA															
P3	Processor Intel Core i7-3517UE															
P5	Processor Intel Core i5-6442EQ															
R3	4 GB RAM															
R4	8 GB RAM															
M3	16 GB Memory															
M5	60 GB Memory															
M6	80 GB Memory															
M9	128 GB Memory															
MB	160 GB Memory															
MC	240 GB Memory															
MD	300 GB Memory															
I0	No additional interface															
I4	CAN-Bus Interface (open CAN)															

Job Id: **262.1-020798-3**
Certificate No: **TAA00001E6**
Revision No: **2**

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

*) Types with card reader (option -C5, -C6) are not to be used on bridge / open deck.
Other types have to be mounted outside 5m radius of the magnetic compass.
The stated explosion protection and zone classification is just referenced and not covered by this type approval.

Product certificate
If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Phoenix Testlab EMC Test Report E153678E1, dated 2017-07-10
Phoenix Testlab EMC Test Report E154428E1, dated 2017-07-10
Phoenix Testlab Environmantal Test Report U153678E1, 2nd version, dated 2016-06-17
Phoenix Testlab Environmantal Test Report U154428E1, dated 2016-08-16
Phoenix Testlab EMC Test Report E200277E1, dated 2021-01-21
R.Stahl HMI System Test Report 2020 12 7001.1, dated 2020-04-16
R.Stahl HMI System Test Report 2020 12 7001.4, dated 2020-04-16
R.Stahl HMI System Test Report 2020 12 7001.3, dated 2020-05-05
CTC Test Report 1-0482/20-01-02, dated 2022-05-30
CTC Test Report 1-0482/20-01-03, dated 2022-05-02
CTC Test Report 1-0482/20-01-04, dated 2022-06-24
CTC Test Report 1-0482/20-01-07, dated 2022-05-30
CTC Test Report 1-0482/20-01-08, dated 2022-05-30
CTC Test Report 1-0482/20-03-02, dated 2022-05-30
CTC Test Report 1-0482/20-03-03, dated 2022-05-30
CTC Test Report 1-0482/20-03-04, dated 2022-05-30
CTC Test Report 1-0482/20-03-05, dated 2022-05-04
Operating Instruction SHARK Device platform, Doc.No. 20141870000, issue 29.03.2022
Component circuit diagrams and parts lists.
Type Approval Assessment Report, DNV Essen, dated 2022-12-20.

Tests carried out

Applicable tests according to Class Guideline DNV CG-0339, August 2021.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and 3.5 years and at renewal of this certificate.

END OF CERTIFICATE

11 Release Notes

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

Version 01.01.07

- Removal of previous release notes
- Changing HW Rev at cover
- Renew DNV / GL certificate
- Renew ABS certificate
- Addition of KGS and KCC certificates
- Addition of "Customer confirmation letter" for Korea
- Formal changes

Version 01.01.08

- Correction of phone and fax no.
- Changing name DNV / GL -> into DNV
- Correction name KGS for Korea -> into KCS
- Addition of BIS certificates
- Renew CNEX certificate
- Formal changes

Version 01.01.09

- Renew DNV certificate
- Removal of EAC certificate
- Formal changes

Version 01.01.10

- Renew PESO certificate for ET-xx8
- Removal of PESO certificate for MT-xx8, expired
- Formal changes

Version 01.01.11

- Renew BIS certificate 2024
- Formal changes

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