



## **Certificates**

### **Remote HMI T-Ex Series**

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

<b>HW-Rev. T-Ex:</b>	<b>01.01.00</b>
<b>Certificates version:</b>	<b>01.01.00</b>
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## Disclaimer

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

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# 1 Preface



This document contains all valid certificates for the Remote HMI T-Ex series. All certificates are also available on R. STAHL HMI Systems GmbH's website and on the CDs/DVDs included in the delivery and a copy can also be ordered from R. STAHL HMI Systems GmbH.

## 2 ATEX EC type examination certificate



(1) **EC-Type Examination Certificate**

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

(3) No. of EC-Type Examination Certificate: **BVS 11 ATEX E 102 X**

(4) Equipment: **Terminal type T-Ex**

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

(6) Address: **50767 Köln, Germany**

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

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 11.2174 EG.




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

EN 60079-0:2009	General requirements
EN 60079-5:2007	Powder filling 'p'
EN 60079-7:2007	Increased safety 'e'
EN 60079-11:2007	Intrinsic safety 'i'
EN 60079-26:2007	Equipment with EPL Ga
EN 60079-28:2004	Optical radiation
EN 60079-31:2009	Protection by enclosures 't'
EN 61241-11:2006	Intrinsic safety 'i'


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

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

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

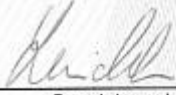
	II 2(1) G Ex e q [ia op is Ga] IIC T4 Gb	Display Unit
	II 2(1) D Ex tb IIIC [ia op is Da] IP64 T110°C Db	
	II 1 G Ex ia IIC T4 Ga	Keyboard/pointing device Unit
	II 1 D Ex ia IIIB T110°C Da	
	II (1) G [Ex op is Ga] IIC	Transmission Unit
	II (1) D [Ex op is Da] IIIB	

DEKRA EXAM GmbH  
Bochum, dated 01. July 2011


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Certification body


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Special services unit

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- (13) Appendix to
- (14) **EC-Type Examination Certificate**  
**BVS 11 ATEX E 102 X**
- (15) 15.1 Subject and type

T-Ex Terminal  
consists of:  
Display Unit type T-Ex -##\*  
Transmission Unit type Typ T-Ex -KVM\*-MM\* or T-Ex -KVM\*-SM\*  
one of the following Pointing Devices  
Keyboard Trackball Unit Type T-Ex \*-KB-TB\*  
Keyboard Mouse Unit Type T-Ex \*-KB-M\*  
Keyboard Pad Unit Type T-Ex \*-KB-P\*  
Keyboard Joystick Unit Type T-Ex \*-KB-J\*

\*=any alphanumeric or symbolic character, without relevance for explosion protection  
#=one numeric character, without relevance for explosion protection

#### 15.2 Description

The T-Ex Terminal is designed to operate, visualize and control processes in hazardous areas. The system contains a display unit, a keyboard/trackball unit and an optional transmission unit which is installed outside the potentially hazardous area.

The display unit is carried out in type of protection Powder Filling "q" to cover the power supply and in type of protection Intrinsic Safety "ia" for various circuits. The terminal box is in type of protection Increased Safety "e".

The keyboard/pointing device unit is designed to be connected to intrinsically safe interfaces. The keyboard- and the pointing device electronics are separated inside the keyboard/pointing device unit and are separately connected via pre mounted connection cables. Four Pointing Devices are possible: type T-Ex \*-KB-TB\*, type T-Ex \*-KB-M\*, type T-Ex \*-KB-P\* and type T-Ex \*-KB-J\*. The Pointing Devices are usable independent from the Display Unit.

The transmission unit covers a fibre optic transceiver and is mounted outside the hazardous area.

The display unit as well as the keyboard/pointing device unit fulfils as well the requirements for Protection by enclosures „t“.

#### 15.3 Parameters

##### 15.3.1 Electrical data

##### 15.3.1.1 Display unit

"PWR" interface parameter for X10 (Ex e):

U	AC	100... 250 V
I ≤	5	A
P ≤	150	W
Maximum r.m.s. a.c. voltage $U_m \leq 250V$		

"USB" interface parameter for X13 (Ex e):

U	AC/DC	5 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250V$		



"12V" interface parameter for X14 (Ex e):

U AC/DC 12 V+ 10%  
 Maximum r.m.s. a.c. or d.c. voltage  $U_m \leq 250V$

"CAT7 1" interface parameter for X16 (Ex e):

U AC/DC 5 V+ 10%  
 Maximum r.m.s. a.c. or d.c. voltage  $U_m \leq 250V$

Connector X11 (Ex ia) Keyboard:

Uo	DC	5.5	V	Ui	5.5	V
Io		309	mA	Ii	3	A
Po		629	mW	Pi	2	W
Co		50	uF	Ci		negligible
Lo		40	uH	Li		negligible

Connector X12 (Ex ia) Pointing device:

Uo	DC	5.5	V	Ui	5.5	V
Io		309	mA	Ii	3	A
Po		629	mW	Pi	2	W
Co		50	uF	Ci		negligible
Lo		40	uH	Li		negligible

Connector X24 (Ex ia) USB1i:

Uo	DC	5.5	V	Ui	5.5	V
Io		309	mA	Ii	3	A
Po		629	mW	Pi	2	W
Co		50	uF	Ci		negligible
Lo		40	uH	Li		negligible

Connector X25 (Ex ia) USB2i:

Uo	DC	5.5	V	Ui	5.5	V
Io		309	mA	Ii	3	A
Po		629	mW	Pi	2	W
Co		50	uF	Ci		negligible
Lo		40	uH	Li		negligible

Only for the type T-EX-##\*-MM\* and type T-EX-##\*-SM\*

"FO 1" interface parameter for X18 (Ex op is):

Type T-EX-##\*-MM\*

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

Type T-EX-##\*-SM\*

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



- 15.3.1.2 Interface parameter of Transmission unit type T-EX-KVM\*-MM\* and type T-EX-KVM\*-SM\*
- Input  
Maximum r.m.s. a.c. voltage  $U_m \leq 250$  V AC
- Output for the Transmission unit type T-EX-KVM\*-MM\* and type T-EX-KVM\*-SM\*  
FO1 parameter for X70 (Ex op is):
- |  |  |      |    |
|--|--|------|----|
| Transmission unit type T-EX-KVM*-MM*               |  |      |    |
| Wavelength   |  | 850  | nm |
| Nominal optical radiated power                     |  | 0.22 | mW |
| Max. optical radiated power under fault conditions |  | 35   | mW |
| Transmission unit type T-EX-KVM*-SM*               |  |      |    |
| Wavelength   |  | 1310 | nm |
| Nominal optical radiated power                     |  | 0.22 | mW |
| Max. optical radiated power under fault conditions |  | 35   | mW |
- 15.3.1.3 Keyboard Trackball Unit type T-Ex \*-KB-TB\*
- 15.3.1.3.1 Keyboard Interface(X72) Ex ia
- |                                |       |    |            |         |
|--------------------------------|-------|----|------------|---------|
| Voltage                        | $U_i$ | DC | 5.5        | V       |
| Current                        | $I_i$ |    | 1          | A       |
| Power                          | $P_i$ |    | 650        | mW      |
| Effective internal capacitance | $C_i$ |    | 20         | $\mu$ F |
| Effective internal inductance  | $L_i$ |    | negligible |         |
- 15.3.1.3.2 Trackball Interface (X73) Ex ia
- |                                |       |    |            |         |
|--------------------------------|-------|----|------------|---------|
| Voltage                        | $U_i$ | DC | 5.5        | V       |
| Current                        | $I_i$ |    | 1          | A       |
| Power                          | $P_i$ |    | 650        | mW      |
| Effective internal capacitance | $C_i$ |    | 20         | $\mu$ F |
| Effective internal inductance  | $L_i$ |    | negligible |         |
- 15.3.1.4 Keyboard Mouse Unit type T-Ex \*-KB-M\*
- 15.3.1.4.1 Keyboard Interface(X72) Ex ia
- |                                |       |    |            |         |
|--------------------------------|-------|----|------------|---------|
| Voltage                        | $U_i$ | DC | 5.5        | V       |
| Current                        | $I_i$ |    | 1          | A       |
| Power                          | $P_i$ |    | 650        | mW      |
| Effective internal capacitance | $C_i$ |    | 20         | $\mu$ F |
| Effective internal inductance  | $L_i$ |    | negligible |         |
- 15.3.1.4.2 Mouse Interface (X94) Ex ia
- |                                |       |    |            |         |
|--------------------------------|-------|----|------------|---------|
| Voltage                        | $U_i$ | DC | 5.5        | V       |
| Current                        | $I_i$ |    | 1          | A       |
| Power                          | $P_i$ |    | 650        | mW      |
| Effective internal capacitance | $C_i$ |    | 20         | $\mu$ F |
| Effective internal inductance  | $L_i$ |    | negligible |         |
- 15.3.1.5 Keyboard Pad Unit type T-Ex \*-KB-P\*
- 15.3.1.5.1 Keyboard Interface(X72) Ex ia
- |                                |       |    |            |         |
|--------------------------------|-------|----|------------|---------|
| Voltage                        | $U_i$ | DC | 5.5        | V       |
| Current                        | $I_i$ |    | 1          | A       |
| Power                          | $P_i$ |    | 650        | mW      |
| Effective internal capacitance | $C_i$ |    | 20         | $\mu$ F |
| Effective internal inductance  | $L_i$ |    | negligible |         |

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15.3.1.5.2 Pad Interface (X95) Ex ia					
Voltage	Ui	DC	5.5	V	
Current	Ii		1	A	
Power	Pi		650	mW	
Effective internal capacitance	Ci		20	µF	
Effective internal inductance	Li			negligible	

15.3.1.6 Keyboard Joystick Unit type T-Ex \*-KB-J\*

15.3.1.6.1 Keybord Interface(X72) Ex ia					
Voltage	Ui	DC	5.5	V	
Current	Ii		1	A	
Power	Pi		650	mW	
Effective internal capacitance	Ci		20	µF	
Effective internal inductance	Li			negligible	

15.3.1.6.2 Joystick Interface (X96) Ex ia					
Voltage	Ui	DC	5.5	V	
Current	Ii		1	A	
Power	Pi		650	mW	
Effective internal capacitance	Ci		40	µF	
Effective internal inductance	Li			negligible	

15.3.2 Thermal Data

Ta = -30°C ... +80°C  
 Permitted ambient temperature rate

Temperature class T4

Max. surface temperature T with thermo fuse limited to 110°C

15.3.3 Degrees of protection according to IEC 60529

Display unit IP64  
 Keyboard/Trackball IP20

(16) Test and assessment report  
 BVS PP 11.2174 EG as of 01.07.2011

(17) Special conditions for safe use

- 17.1 Along the intrinsically safe circuits between Display Unit and Pointing Device potential equalisation must exist.
- 17.2 The Pointing Device shall not be used in areas where charging mechanism creating propagating brush discharges have to be regarded.

### 3 Release Notes

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

Version 1.01.00

- Splitting of documentation in operation instruction, manual and certificates
- Inclusion of hardware revision
- Inclusion actual certificates



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