



THE STRONGEST LINK.

Certificates

Device platform MANTA

ET-xx7

SERIES 400 Panel PC
SERIES 500 Thin Clients
SERIES 600 KVM Systems

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


HW-Rev.	ET-4x7:	01.03.00
HW-Rev.	ET-5x7:	01.03.00
HW-Rev.	ET-6x7:	01.03.00
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HW-Rev.	ET-5x7-*-BT:	01.03.03
HW-Rev.	ET-5x7-*-P2:	01.03.04

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1 Preface

 NOTICE	<p>This document contains all valid certificates for the HMI T-Ex (ET-xx7) device series.</p> <p>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.</p>
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2 Type allocation

Since the beginning of 2013, the T-series devices have been allocated new type names according to the following pattern:

To avoid the bother of having to re-write certifications, the names in the certificates remain the same, but the devices receive new names.


In the interest of a clear link between device type and certificate, both device names are listed on the type plate from 01.04.2013 onwards.

2.1 Type marking

Old (certificate)	New
T-Ex-##*-CAT7*-R2	ET-##7*-TX*
T-Ex-##*-CAT7*-R2	ET-##7*-CAT*
T-Ex-##*-MM*-R2	ET-##7*-MM*
T-Ex-##*-SM*-R2	ET-##7*-SM*

* = random alphanumeric or symbolic characters without relevance to explosion protection.

= random numeric character without relevance to explosion protection.

 NOTICE	<p>For the exact new device name and model please refer to the type code in the operating instructions.</p>
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3 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 II 2(1) D Ex tb IIIC [ia op is Da] IP64 T110°C Db II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIB T110°C Da II (1) G [Ex op is Ga] IIC II (1) D [Ex op is Da] IIIB	Display Unit Keyboard/pointing device Unit Transmission Unit
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DEKRA EXAM GmbH
Bochum, dated 01. July 2011

Certification body

Special services unit



- (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 Um ≤ 250V		

“USB” interface parameter for X13 (Ex e):

U	AC/DC	5 V + 10%
Maximum r.m.s. a.c. or d.c. voltage Um ≤ 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	μF
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	μF
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	μF
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	μF
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	μF
Effective internal inductance	L_i		negligible	



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 Keyboard 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 ... +60°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.

3.1 1. Supplement



(1) **1. Supplement to the 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 Cologne, 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:

<p>⊕ Ex II 2(1) G Ex e q [ia op is Ga] IIC T4 Gb II 2(1) D Ex tb IIIC [ia op is Da] IP64 T110°C Db</p> <p>⊕ Ex II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIB T110°C Da</p> <p>⊕ Ex II (1) G [Ex op is Ga] IIC II (1) D [Ex op is Da] IIIB</p>	<p>Display Unit</p> <p>Keyboard/pointing device Unit</p> <p>Transmission Unit</p>
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DEKRA EXAM GmbH
Bochum, dated 28th July 2011



Certification body



Special services unit



- (13) Appendix to
- (14) **1. Supplement to the 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 data of the "PWR" interface parameter for X10 (Ex e) changed.

15.3 Parameters

15.3.1 Electrical data

15.3.1.1 Display unit

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

U AC/DC 20...240 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:

U _o	DC	5.5	V	U _i	5.5	V
I _o		309	mA	I _i	3	A
P _o		629	mW	P _i	2	W
C _o		50	µF	C _i		negligible
L _o		40	µH	L _i		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 $U_m \leq 250V$ 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	Ui	DC	5.5	V	
Current	Ii		1	A	
Power	Pi		650	mW	
Effective internal capacitance	Ci		20	µF	
Effective internal inductance	Li			negligible	
15.3.1.3.2 Trackball Interface (X73) 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	
15.3.1.4 Keyboard Mouse Unit type T-Ex *-KB-M*					
15.3.1.4.1 Keyboard 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	
15.3.1.4.2 Mouse Interface (X94) 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	
15.3.1.5 Keyboard Pad Unit type T-Ex *-KB-P*					
15.3.1.5.1 Keyboard 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	
15.3.1.5.2 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 ... +60°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 28.07.2011

(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.

3.2 2. Supplement



(1) **2. Supplement to the 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 Cologne, Germany**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.
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- (9) The Essential Health and Safety Requirements are assured by compliance with:
 - EN 60079-0:2009 General requirements
 - EN 60079-5:2007 Powder filling 'q'
 - 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 II 2(1) D Ex tb IIIC [ia op is Da] IP64 T110°C Db	Display Unit Type T-Ex -##*
	II 2(1) G Ex e q [ia op is Ga] IIC T4 Gb II 2(1) D Ex tb IIIC [ia op is Da] IP65 T110°C Db	Display Unit Type T-Ex -##-R2
	II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIB T110°C Da	Keyboard/pointing device Unit
	II (1) G [Ex op is Ga] IIC II (1) D [Ex op is Da] IIIB	Transmission Unit

DEKRA EXAM GmbH
Bochum, dated 19.08.2011

Certification body

Special services unit



- (13) Appendix to
- (14) **2. Supplement to the 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 -##* and type T-Ex -##*-R2
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*

one alphanumeric character, without relevance for explosion protection
* any alphanumeric or symbolic character, without relevance for explosion protection

15.2 Description

Terminal type T-Ex -##*-R2 is added which is modified according to the documentation below.
For the type the degrees of protection change to IP65.

15.3 Parameters

- 15.3.1 Electrical data
- 15.3.1.1 Display unit

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

U	AC/DC	20... 240	V
I	≤	5	A
P	≤	150	W

Maximum r.m.s. a.c. voltage $U_m \leq 250$ V

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

U	AC/DC	5 V + 10 %
---	-------	------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

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

U	AC/DC	12 V + 10 %
---	-------	-------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

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

U	AC/DC	5 V + 10 %
---	-------	------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

"SER" interface parameter for X97 (Ex e):

U	AC/DC	15 V + 10 %
---	-------	-------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

"CAM" interface parameter for X101 (Ex e):

U	AC/DC	5 V + 10 %
---	-------	------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

"AUD" interface parameter for X105 (Ex e):

U	AC/DC	100 V + 10 %
---	-------	--------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V



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) Trackball:

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	D	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 $U_m \leq 250V$ 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*					
Keyboard 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	µF	
Effective internal inductance	L _i			negligible	
Trackball X73 (Ex ia)					
Current	U _i	DC	5.5	V	
Current	I _i		1	A	
Power	P _i		650	mW	
Effective internal capacitance	C _i		20	µF	
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	µF	
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	µF	
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	µF	
Effective internal inductance	L _i			negligible	
15.3.1.5.2 Pad Interface (X95) 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	µF	
Effective internal inductance	L _i			negligible	
15.3.1.6 Keyboard Joystick Unit type T-Ex *-KB-J*					
15.3.1.6.1 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	µF	
Effective internal inductance	L _i			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

Permitted ambient temperature rate Ta = -30 °C ... +60 °C

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 type T-Ex -##*-R2	IP65
Display unit type T-Ex -##*	IP64
Keyboard/Trackball	IP20


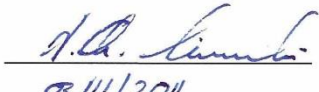

(16) Test and Assessment Report

BVS PP 11.2174 EG as of 19.08.2011

(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.

4 IECEX certification

		<h1>IECEX Certificate of Conformity</h1>	
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEX Scheme visit www.iecex.com</small></p>			
Certificate No.:	IECEX BVS 11.0075X	issue No.:0	Certificate history: _____
Status:	Current		
Date of Issue:	2011-11-03	Page 1 of 3	
Applicant:	R. Stahl HMI Systems GmbH Im Gewerbegebiet Pesch 14 50767 Cologne Germany		
Electrical Apparatus: Optional accessory:	Terminal type T-Ex		
Type of Protection:	Intrinsic safety "i", Protection of equipment and transmission systems using optical radiation, Protection by enclosure 't', Powder filling "q", Increased safety "e", Intrinsic safety 'ID'		
Marking:	Display Unit Type T-Ex -##-R2 Ex e q [ia op is Ga] IIC T4 Gb Ex tb IIIC [ia op is Da] IP65 T110°C Db Display Unit Type T-Ex -##- Ex e q [ia op is Ga] IIC T4 Gb Ex tb IIIC [ia op is Da] IP64 T110°C Db 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* Ex ia IIC T4 Ga, Ex ia IIIB T110°C Da Transmission Unit Type T-Ex -KVM*-MM* or T-Ex -KVM*-SM* [Ex op is Ga] IIC, [Ex op is Da] IIIB		
Approved for issue on behalf of the IECEX Certification Body:	H.-Ch. Simanski		
Position:	Head of Certification Body		
Signature: (for printed version)			
Date:	03/11/2011		
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 Dinnendahlstrasse 9 44809 Bochum Germany		
			



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 11.0075X
 Date of Issue: 2011-11-03
 Issue No.: 0
 Page 2 of 3

Manufacturer: **R. Stahl HMI Systems GmbH**
 Im Gewerbegebiet Pesch 14
 50767 Cologne
 Germany

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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-28 : 2006-08 Edition: 1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-5 : 2007-03 Edition: 3	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'

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/ExTR11.0105/00

Quality Assessment Report:

DE/BVS/QAR06.0007/05



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 11.0075X
 Date of Issue: 2011-11-03
 Issue No.: 0
 Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

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“.

Parameters

See Annex

Subject and type

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use

1. Along the intrinsically safe circuits between display unit and keyboard/trackball unit potential equalisation must exist.
2. The Keyboard/Trackball Unit shall not be used in areas where charging mechanism creating propagating brush discharges have to be regarded.

Annexe: BVS_11_0075X_R_STAHL HMI_Annex.pdf



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 11.0075X**
Annex
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Parameters

Electrical data

Display unit

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

U AC/DC 20...240 V
 I ≤ 5 A
 P ≤ 150 W
 Maximum r.m.s. a.c. voltage $U_m \leq 250$ V

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

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

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

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

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

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

"SER" interface parameter for X97 (Ex e):

U AC/DC 15 V + 10%
 Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

"CAM" interface parameter for X101 (Ex e):

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

"AUD" interface parameter for X105 (Ex e):

U AC/DC 100 V + 10%
 Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V

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



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 11.0075X**
Annex
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Connector X12 (Ex ia) Trackball:

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) USB1:

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) USB2:

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

Interface parameter of Transmission unit type T-Ex-KVM*-MM* and type T-Ex-KVM*-SM* Input
 Maximum r.m.s. a.c. voltage $U_m \leq 250V$ 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



IECEX Certificate of Conformity



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Annex
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Keyboard Trackball Unit type T-Ex *-KB-TB*

Keyboard X72 (Ex ia):

U _I	DC	5.5 V
I _I		1 A
P _I		650 mW
C _I		20 µF
L _I		negligible

Trackball X73 (Ex ia)

U _I	DC	5.5 V
I _I		1 A
P _I		650 mW
C _I		20 µF
L _I		negligible

Keyboard Mouse Unit type T-Ex *-KB-M*

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 µF
Effective internal inductance	L _i		negligible

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 µF
Effective internal inductance	L _i		negligible

Keyboard Pad Unit type T-Ex *-KB-P*

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 µF
Effective internal inductance	L _i		negligible

Pad Interface (X95) 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 µF
Effective internal inductance	L _i		negligible

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

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 µF
Effective internal inductance	L _i		negligible



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Annex
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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

Thermal Data

Ta = -30 °C ... +60 °C
Permitted ambient temperature rate

Temperature class T4

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

Degrees of protection according to IEC 60529



Display unit type T-Ex -##*-R2	IP65
Display unit type T-Ex -##*	IP64
Keyboard/Trackball	IP20

Subject and type

T-Ex Terminal
consists of:
Display Unit type T-Ex -##* and type T-Ex -##*-R2
Transmission Unit type 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*

one alphanumeric character, without relevance for explosion protection
* any alphanumeric or symbolic character, without relevance for explosion protection

5 EAC (TR) certification

ТАМОЖЕННЫЙ СОЮЗ	
СЕРТИФИКАТ СООТВЕТСТВИЯ	
	№ ТС <u>RU C-DE.ГБ04.В.00478</u>
	Серия RU № <u>0202047</u>
ОРГАН ПО СЕРТИФИКАЦИИ	
Орган по сертификации взрывозащищенного, рудничного и электрооборудования общепромышленного назначения АНО «Центр сертификации «СТВ» Адрес: 607190, Нижегородская область, г. Саров, пр. Мира, 37 Телефон: (83130) 45669, факс: (83130)45530, E-mail: stv@stv.vniief.ru Аттестат аккредитации рег. № РОСС RU.0001.11ГБ04 от 01.09.2010, выдан Федеральным агентством по техническому регулированию и метрологии. Приказ об аккредитации Федеральной службы по аккредитации № А-1239 от 07.05.2013	
ЗАЯВИТЕЛЬ	
Общество с ограниченной ответственностью «Р. ШТАЛЬ», ОГРН 5087746541493 Адрес: Россия, 129085 г. Москва, Звездный бульвар 21,строение 1 Телефон: 4956153252, факс: 4956150473, E-mail: info@stahl.ru.com	
ИЗГОТОВИТЕЛЬ	
R.Stahl HMI Systems GmbH GmbH Адрес: Im Gewerbegebiet Pesch 14, D-50767, Cologne, Германия	
ПРОДУКЦИЯ	
Терминалы типа Т-Ех, МТ-##7*-. Продукция изготовлена в соответствии с ГОСТ Р МЭК 60079-0-2011, ГОСТ Р МЭК 60079-5-2012, ГОСТ Р МЭК 60079-7-2012, ГОСТ Р МЭК 60079-11-2010, ГОСТ Р МЭК 60079-15-2010, ГОСТ Р 52350.28-2007 (МЭК 60079-28:2006), ГОСТ Р МЭК 60079-31-2010, ГОСТ ИЕС 61241-11-2011. Описание продукции, требования к маркировке и специальные условия безопасного применения - в приложении к сертификату на бланках № 0181366, № 0181367, 0181368. Серийный выпуск	
КОД ТН ВЭД ТС 8471 90 000 0	
СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ	
Технического регламента Таможенного союза ТР ТС 012/2011 "О безопасности оборудования для работы во взрывоопасных средах"	
СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ	
- протокола испытаний № А0088.1.СТ/15 от 29.06.2015 Испытательного центра промышленной продукции РФЯЦ-ВНИИЭФ (Рег. № РОСС RU.0001.21МЕ17, срок действия до 01.09.2015); - акта о результатах анализа состояния производства № С3.0088.4/15 от 17.06.2015 Органа по сертификации Центр сертификации «СТВ» (Рег.№ РОСС RU.0001.11ГБ04, срок действия до 01.09.2015)	
ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ	
Дополнительные позиции в обозначении устройств, выделенные символом (#), сертификатом не регламентируются. Условия хранения – в соответствии с эксплуатационной документацией на продукцию. Схема сертификации 1с	
СРОК ДЕЙСТВИЯ С <u>11.08.2015</u> ПО <u>10.08.2020</u> ВКЛЮЧИТЕЛЬНО	
	Руководитель (уполномоченное лицо) органа по сертификации <u>В.В. Байрак</u> (подпись) (инициалы, фамилия)
	Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) <u>А.К. Давыденков</u> (подпись) (инициалы, фамилия)
Бланк изготовлен ЗАО «ОПЦИОН» www.opcion.ru (лицензия № 05-05-09/003 ФНС РФ) тел. (495) 726 4742, Москва, 2013	

ТАМОЖЕННЫЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС **RU C-DE.ГБ04.В.00478**

Серия RU № **0181366**

Лист 1, листов 3

1 ПРОДУКЦИЯ, НА КОТОРУЮ РАСПРОСТРАНЯЕТСЯ ДЕЙСТВИЕ СЕРТИФИКАТА

Терминалы типа Т-Ех, МТ-##7*-, комплектуемые устройствами из числа указанных в табл. 1:

Таблица 1

№ п/п	Наименование и тип устройства	Маркировка взрывозащиты и защиты от воспламенения горючей пыли
1	Блок дисплея типа Т-Ех - ##*- R2	1Ex e q [ia op is Ga] IIC T4 Gb X Ex tb IIIC [ia op is Da] IP65 T110°C Db
2	Блок дисплея типа Т-Ех - ##*	1Ex e q [ia op is Ga] IIC T4 Gb X Ex tb IIIC [ia op is Da] IP64 T110°C Db
3	Блок дисплея типа МТ - ##7* - *	2Ex nA nR [ia op is Ga] IIC T4 Gc X Ex tc IIIC [ia op is Da] IP66 T110°C Dc
4	Блок клавиатуры с трекболом типа Т-Ех*-КВ-ТВ*	0Ex ia IICT4 Ga X Ex ia IIIB T110°C Da
5	Блок клавиатуры с мышью типа Т-Ех*-КВ-М*	0Ex ia IICT4 Ga X Ex ia IIIB T110°C Da
6	Блок клавиатуры с сенсорной панелью типа Т-Ех*-КВ-Р*	0Ex ia IICT4 Ga X Ex ia IIIB T110°C Da
7	Блок клавиатуры с джойстиком типа Т-Ех*-КВ-Ж*	0Ex ia IICT4 Ga X Ex ia IIIB T110°C Da
8	Блок передачи типа Т-Ех -КVM*-ММ* или Т-Ех -КVM*-SM*	[Ex op is Ga] IIC X [Ex op is Da] IIIB

Примечания:

1. Позиции в обозначении устройств, выделенные символом (*) и (#), сертификатом не регламентируются.
2. Устройства, перечисленные в табл. 1, допускается применять только в составе терминалов типа Т-Ех, МТ-##7*-*.

2 НАЗНАЧЕНИЕ

Терминалы типа Т-Ех, МТ-##7*-* (далее – изделия) предназначены для управления и контроля за технологическими процессами и обеспечивают возможность оператору визуально в режиме реального времени отслеживать состояние контролируемых параметров и вносить необходимые коррективы. Они могут использоваться в качестве элементов систем управления в различных отраслях промышленности.

3 ОСНОВНЫЕ ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

3.1 Маркировка взрывозащиты и защиты от воспламенения горючей пыли:

- для устройств, входящих в комплект изделий
- для терминалов Т-Ех

указана в разделе 1

1Ex eq ia [ia op is Ga] IIC T4 Gb X
Ex tb ia IIIB [ia op is Da] IP64 T110°C Db
2Ex nA n R ia [ia op is Ga] IIC T4 Gc X
Ex tc ia IIIC [ia op is Da] IP66 T110°C Dc

- для терминалов МТ-##7*-*

3.2 Степень защиты, обеспечиваемая оболочкой, не ниже:

- блока дисплея типа Т-Ех - ##*- R2 IP65
- блока дисплея типа Т-Ех - ##* IP64
- блока дисплея типа МТ - ##7* - * IP66
- блоков клавиатуры и блоков передачи всех типов IP20

3.3 Параметры искробезопасных цепей дисплея (постоянный или переменный ток):

Наименование цепи	U, В	I, А	P, Вт
Интерфейс PWR. Клеммная колодка X10	20...240	5	150
Интерфейс USB. Клеммная колодка X13	5 + 10%	-	-
Интерфейс «12 В». Клеммная колодка X14	12 + 10%	-	-



Руководитель (уполномоченное лицо) органа по сертификации

(подпись)

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы))

(подпись)

Handwritten signature of V.V. Bayrak

В.В. Байрак
(инициалы, фамилия)

Handwritten signature of A.K. Davydenkov

А.К. Давыденков
(инициалы, фамилия)

ТАМОЖЕННЫЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ №ТС **RU C-DE.ГБ04.В.00478**

Серия RU № **0181367**

Лист 2, листов 3

Наименование цепи	U, В	I, А	P, Вт
Интерфейс CAT7 1. Клеммная колодка X16	5 + 10%	-	-
Интерфейс SER. Клеммная колодка X97	15 + 10%	-	-
Интерфейс CAM. Клеммная колодка X101	5 + 10%	-	-
Интерфейс AUD. Клеммная колодка X105	100 + 10%	-	-

3.4 Максимальное напряжение питания блоков передачи (переменный ток частотой 50 Гц): **250 В**

3.5 Выходные параметры блоков передачи (интерфейс FO1. Клеммная колодка X70):

3.5.1 Блок передачи типа T-Ex -KVM*-MM*:

- длина волны **850 нм**
- номинальная оптическая мощность излучения **0,22 мВт**
- максимальная оптическая мощность излучения в случае нарушений **35 мВт**

3.5.2 Блок передачи типа T-Ex -KVM*-SM*:

- длина волны **1310 нм**
- номинальная оптическая мощность излучения **0,22 мВт**
- максимальная оптическая мощность излучения в случае нарушений **35 мВт**

3.6 Параметры искробезопасных электрических цепей (постоянный ток):

Наименование цепи и обозначение клеммной колодки	U ₀ /U _i , В	I ₀ /I _i , mA	P ₀ /P _i , мВт	L ₀ /L _i , мкГн	C ₀ /C _i , мкФ
Дисплей – клавиатура (X11), дисплей – трекбол (X12), дисплей – USB1i (X24) и USB2i (X25)	5,5 / 5,5	309 / 3000	629 / 2000	40 / ~0	50 / ~0
Интерфейс – клавиатура (X72), интерфейс – трекбол (X73), интерфейс – мышь (X94), интерфейс – клавиши (X95)	- / 5,5	- / 1000	- / 650	- / ~0	- / 20
Интерфейс – джойстик (X96)	- / 5,5	- / 1000	- / 650	- / ~0	- / 40

3.7 Класс электрооборудования по способу защиты от поражения электрическим током: **I, III**

3.8 Допустимый диапазон температуры окружающей среды в месте размещения изделия, °С: **-30...+60**

4 ОПИСАНИЕ КОНСТРУКЦИИ И СРЕДСТВ ОБЕСПЕЧЕНИЯ ВЗРЫВОЗАЩИЩЕННОСТИ

4.1 Терминалы типа T-Ex, MT-##7*-* могут комплектоваться различными устройствами из числа указанных в табл. 1 в зависимости от решаемых задач. В комплекте предусмотрены блоки дисплея, клавиатуры и передачи. На передней панели корпуса изделия размещена клавиатура и имеется окно для экрана сенсорного дисплея, на задней стенке установлена клеммная коробка для размещения клеммных терминалов (колодок) и установки кабельных вводов. Внутри корпуса размещены электронные схемы центрального процессора, интерфейсов, считывателей и блока питания, который имеет дополнительный собственный корпус. Блок передачи имеет волоконно-оптический приемо-передатчик и размещается вне взрывоопасной зоны. Соединение дисплея и блока передачи осуществляется с помощью волоконно-оптического кабеля.

4.2 Устройства выполнены во взрывозащищенном исполнении со следующими видами взрывозащиты: кварцевое заполнение оболочки "q" по ГОСТ Р МЭК 60079-5-2012, повышенная защита вида "е" по ГОСТ Р МЭК 60079-7-2012, искробезопасная электрическая цепь "i" по ГОСТ Р МЭК 60079-11-2010, защита вида "n" по ГОСТ Р МЭК 60079-15-2010, защита вида "op is" по ГОСТ Р 52350.28-2007 (МЭК 60079-28:2006), а также – с защитой от воспламенения горючей пыли "t" по ГОСТ Р МЭК 60079-31-2010 и искробезопасное оборудование "id" по ГОСТ IEC 61241-11-2011. Дисплей имеет комбинированную взрывозащиту вида "e q [ia op is Ga]" или "nA nR [ia op is Ga]". С защитой вида "е" выполнена клеммная коробка, а источник питания имеет защиту вида "q".



Руководитель (уполномоченное лицо) органа по сертификации

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы))

В.В. Байрак
(подпись) **В.В. Байрак**
(инициалы, фамилия)

А.К. Давыденков
(подпись) **А.К. Давыденков**
(инициалы, фамилия)

ТАМОЖЕННЫЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС RU C-DE.ГБ04.В.00478

Серия RU № **0181368**

Лист 3, листов 3

Искробезопасное исполнение уровня "ia" имеют электрические цепи для подсоединения трекбола, мыши, джойстика и клавишной панели. Искробезопасное исполнение устройств-указателей и клавиатуры обеспечивается применением расположенных в оболочке дисплея искробезопасных барьеров, ограничивающих подаваемые токи и напряжения до искробезопасного уровня в соответствии с разделом 3 настоящего Приложения. Подсоединения клавиатуры устройств-указателей выполнены отдельно при помощи смонтированных заранее соединительных кабелей.

Изделие имеет клеммы для подключения шины заземления. Подключение кабелей производится с помощью сертифицированных на соответствие ТР ТС 012/2011 Ех-кабельных вводов.

Взрывозащищенность устройств обеспечивается также выполнением общих технических требований ГОСТ Р МЭК 60079-0-2011.

4.3 Монтаж и эксплуатация изделий должны осуществляться в соответствии с требованиями инструкций по эксплуатации, ГОСТ IEC 60079-14-2011, ГОСТ IEC 60079-17-2011, ГОСТ Р МЭК 60079-19-2011, а также раздела 5 настоящего приложения.

5 СПЕЦИАЛЬНЫЕ УСЛОВИЯ БЕЗОПАСНОГО ПРИМЕНЕНИЯ

5.1 Запрещается производить ремонт электронных схем, обеспечивающих искробезопасное исполнение. При выходе из строя печатные платы и элементы искробезопасных цепей должны заменяться новыми, поставляемыми изготовителем.

5.2 Изделие необходимо заземлять путем подсоединения шин заземления к заземляющим клеммам.

5.3 При заземлении искробезопасных цепей необходимо обеспечить уравнивание потенциалов всех элементов, объединенных в единую искробезопасную систему.

6 МАРКИРОВКА

6.1 Маркировка наносится на специальных табличках, устанавливаемых на оболочках устройств, перечисленных в разделе 1, а также на корпусе терминалов, и должна включать следующие данные:

- наименование изготовителя или его зарегистрированный товарный знак;
- тип, заводской номер и год выпуска;
- маркировку взрывозащиты и защиты от воспламенения горючей пыли;
- аббревиатуру органа по сертификации (ЦС «СТВ») и номер сертификата;
- допустимый диапазон температуры окружающей среды в месте установки изделия;
- надпись «Только в составе терминалов типа Т-Ех, МТ-##7*-*»

На табличке должен быть нанесен специальный знак взрывобезопасности в соответствии с ТР ТС 012/2011, а также единый знак обращения на рынке государств-членов Таможенного союза.


6.2 На оболочках устройств, перечисленных в разделе 1, должна быть установлена табличка со следующей предупреждающей надписью:

ПРЕДУПРЕЖДЕНИЕ - ОТКРЫВАТЬ, ОТКЛЮЧИВ ОТ СЕТИ

6.3 На оболочке блока питания должна быть установлена табличка со следующей предупреждающей надписью:


ПРЕДУПРЕЖДЕНИЕ - КВАРЦЕВОЕ ЗАПОЛНЕНИЕ. ОБОЛОЧКУ НЕ ОТКРЫВАТЬ

Внесение изменений в конструкцию и (или) техническую документацию, влияющих на показатели взрывобезопасности изделия, осуществляется в соответствии с ТР ТС 012/2011.




Руководитель (уполномоченное лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))



(подпись)


В.В. Байрак
(инициалы, фамилия)



А.К. Давыденков
(инициалы, фамилия)

Бланк изготовлен ЗАО "ОПЦИОН", www.opcion.ru (лицензия № 05-05-09/003 ФНС РФ), тел. (495) 726 4742, Москва, 2013

6 DNV / GL certification

 NOTICE	<p>NB: Only the HMI devices type: ET-667-DVI3-yM-FO-TFT-TG-AC-O30-AL ET-677-DVI3-yM-FO-TFT-TG-AC-O30-AL ET-687-DVI3-yM-FO-TFT-TG-AC-O30-AL have DNV / GL certification! with y: M = FO direct connection multi-mode S = FO direct connection single mode</p>
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Certificate No:
TAA00000BK

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Peripheral Equipment

with type designation(s)
KVM Systems Series 600

Issued to
R. Stahl HMI Systems GmbH
Köln, Germany

is found to comply with
DNV GL rules for classification – Ships

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

Temperature	D	
Humidity	B	
Vibration	A	
EMC	A	
Enclosure		Required protection according to the Rules shall be provided upon installation on board.

This Certificate is valid until **2021-11-03**.
 Issued at **Hamburg** on **2016-11-04**

DNV GL local station: **Magdeburg**
 Approval Engineer: **Heinz Scheffler**



Digitally Signed By: Rinkel, Marco
 for **DNV GL**
 Signing Date: 2016-11-18
 Location: Hamburg - for Duy Nam Le

Duy Nam Le
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: **262.1-021174-1**
 Certificate No: **TAA00000BK**

Product description

The KVM Systems Series 600 transfer technology is used for the point-to-point connection between a PC and ET-6x7 Display.

Display:

Function / equipment	ET-667	ET-677	ET-687
Window	Glass		
Display type	TFT color display 16.7 million colors		
Display Size	56 cm (22")	61 cm (24")	61 cm (24"WU)
Resolution in pixels	WSXGA+ 1680 x 1050	Full HD 1920 x 1080	WUXGA 1920 x 1200
Picture format	16:10	16:09	16:10
LVDS Clock [MHz]	60	74.25	77
Frame Rate [Hz]	60	60	59.95
Power supply	100 - 240 VAC, 50 - 60 Hz		

Data transfer via KVM-DVI3 Switch

Point-to-point data connection from a PC outside to HMI ET-667 / ET-677 / ET 687.

Power IEC connector power supply:100 - 240 VAC

DVI / VGA in: DVI-I connector (connection to the PC)

DVI / VGA out: DVI-I connector (connection to the screen)

USB: USB plug type B USB (connection to the PC)

Serial Interface: Sub-D 9 pin socket (RS-232,)

Audio out: 3.5mm TRS socket

Audio in: 3.5mm TRS socket

Data: Optical fibre connection type LC Duplex connector.

Maximal cable length:

- USB, RS-232 and Audio: max. 3 m
- Data optical fibre MM: up to 500 m via 50/125 µm optical fibre cable, up to 300 m via 62.5/125 µm optical fibre cable
- Data optical fibre SM: up to 10,000 m via a 9/125 µm optical fibre cable

Application/Limitation

Please observe the "Marking of product".

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Test Reports: U154383E1; E154383E1.


Data sheets:DS_ET_667_en; DS_ET_677_en; DS_ET_687_en.

Operating instructions: OI_ET_xx7_en_V_01_03_02; OI_KVM_units_en_V_01_00_01.

Documents overview: 154383_2016-11-02_01.

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.



Job Id: **262.1-021174-1**
Certificate No: **TAA00000BK**

Marking of product

The products to be marked with:

- Model name: Display ET/MT-6x7-DVI3-yM-FO-TFT-TG-AC-O30-AL
KVM Switch 6x7-KVM-DVI3-yM-FO
x: 6 = 56 cm / 22" display; 7 = 61 cm / 24" display; 8 = 61 cm / 24"WU display.
y: M=with direct optical fibre connection multi-mode;
S=with direct optical fibre connection single mode.
- Manufacturer name
- Serial number

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE

7 KGS certification

 NOTICE	<p>In order to be able to operate these terminals in Korea, each device type additionally requires a KCC certificate. Actually the following devices has such a certificate: T-Ex-22 (ET-x67), T-Ex-22-DVI3 (ET-667-DVI3), T-Ex-24T (ET-x77 with Touch screen (foil)), T-Ex-KVM-DVI3 (6x7-KVM-DVI3)</p>
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제12-0617호

안 전 인 증 서

R. STAHL HMI Systems GmbH

Im Gewerbegebiet Pesch 14, 50767 Cologne Germany

위 사업장에서 제조하는 아래의 품목이 「산업안전보건법」 제34조 및 같은 법 시행규칙 제58조의4제4항에 따른 안전인증 심사 결과 안전·보건기준에 적합하므로 안전인증표시의 사용을 인증합니다.

————— 품 목 —————
 Terminal
 ——— 형식 · 모델 / 용량 · 등급 / 인증번호 ———

형식·모델	용량 · 등급	인증번호
T-Ex	첨부 인증조건(12-617) 참조 Ex e q IIC T4 Ex tb IIIC IP64 T110°C Ex ia IIC T4 Ex ia IIIB T110°C	12-GA4BO-0617X

————— 인 증 기 준 —————
 방호장치 의무안전인증 고시(고용노동부고시 제2010-36호)
 ——— 인 증 조 건 ———
 첨부 인증조건(12-617) 참조

2012 년 10 월 8 일

한국가스안전공사 사장





인 증 조 건

1. 제조공장:

Im Gewerbegebiet Pesch 14, 50767 Cologne Germany에 위치한 R. STAHL HMI Systems GmbH 공장에서 생산한 제품 중 아래 인증범위의 제품에 한함.

2. 제품개요

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'.

3. 인증범위: 본 인증서는 아래의 형식번호에 한하여 유효함

품목 명 Terminal, 모델 명 T-Ex에 한하여 인증함.

첨부 인증조건(12-617) 참조.

4. 안전한 사용을 위한 조건

1. Along the intrinsically safe circuits between display unit and keyboard/trackball unit potential equalisation must exist.

2. The Keyboard/Trackball Unit shall not be used in areas where charging mechanism creating propagating brush discharges have to be regarded.

5. 인증(변경)사항

6. 그 밖의 사항

안전인증품의 품질관리, 확인심사 수검, 변경사항 신고 등 인증 받은 자의 의무 준수



[첨 부]

인 증 조 건(12-617)

Parameters

Electrical data

Display unit

“PWR” interface parameter for X10 (Ex e):

U	AC/DC	20...240 V
I	≤	5 A
P	≤	150 W

Maximum r.m.s. a.c. voltage $U_m \leq 250 \text{ V}$

“USB” interface parameter for X13 (Ex e):

U	AC/DC	5 V + 10%
---	-------	-----------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$

“12V” interface parameter for X14 (Ex e):

U	AC/DC	12 V + 10%
---	-------	------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$

“CAT7 1” interface parameter for X16 (Ex e):

U	AC/DC	5 V + 10%
---	-------	-----------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$

“SER” interface parameter for X97 (Ex e):

U	AC/DC	15 V + 10%
---	-------	------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$

“CAM” interface parameter for X101 (Ex e):

U	AC/DC	5 V + 10%
---	-------	-----------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$

“AUD” interface parameter for X105 (Ex e):

U	AC/DC	100 V + 10%
---	-------	-------------

Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$



인 증 조 건(12-617)

Connector X11 (Ex ia) Keyboard:

U _o	DC	5.5	V	U _i	5.5	V
I _o		309	mA	I _i	3	A
P _o		629	mW	P _i	2	W
C _o		50	uF	C _i		negligible
L _o		40	uH	L _i		negligible

Connector X12 (Ex ia) Trackball:

U _o	DC	5.5	V	U _i	5.5	V
I _o		309	mA	I _i	3	A
P _o		629	mW	P _i	2	W
C _o		50	uF	C _i		negligible
L _o		40	uH	L _i		negligible

Connector X24 (Ex ia) USB1i:

U _o	DC	5.5	V	U _i	5.5	V
I _o		309	mA	I _i	3	A
P _o		629	mW	P _i	2	W
C _o		50	uF	C _i		negligible
L _o		40	uH	L _i		negligible

Connector X25 (Ex ia) USB2i:

U _o	DC	5.5	V	U _i	5.5	V
I _o		309	mA	I _i	3	A
P _o		629	mW	P _i	2	W
C _o		50	uF	C _i		negligible
L _o		40	uH	L _i		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

(2/5)



인 증 조 건(12-617)

Interface parameter of Transmission unit type T-Ex-KVM*-MM* and type T-Ex-KVM*-SM* Input
Maximum r.m.s. a.c. voltage $U_m \leq 250V$ 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

Keyboard Trackball Unit type T-Ex *-KB-TB*

Keyboard X72 (Ex ia):

U_i	DC	5.5	V
I_i		1	A
P_i		650	mW
C_i		20	μF
L_i		negligible	

Trackball X73 (Ex ia)

U_i	DC	5.5	V
I_i		1	A
P_i		650	mW
C_i		20	μF
L_i		negligible	

Keyboard Mouse Unit type T-Ex *-KB-M*

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	μF
Effective internal inductance	L_i		negligible	

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	μF
Effective internal inductance	L_i		negligible	

(3/5)



인 증 조 건(12-617)

Keyboard Pad Unit type T-Ex *-KB-P*

Keyboard 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

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

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

Keyboard 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

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

Thermal Data

Ta = -30 °C ... +60 °C
Permitted ambient temperature rate

Temperature class T4

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

Degrees of protection according to IEC 60529

Display unit type T-Ex -##*-R2	IP65
Display unit type T-Ex -##*	IP64
Keyboard/Trackball	IP20

(4/5)



인증조건(12-617)

Subject and type

T-Ex Terminal

consists of:

Display Unit type T-Ex -##* and type T-Ex -##*-R2

Transmission Unit type 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*


one alphanumeric character, without relevance for explosion protection

* any alphanumeric or symbolic character, without relevance for explosion protection

7.1 KCC certificate

7.1.1 T-Ex-22 (ET-x67)


5122-9931-49BD-91CE

방송통신기자재등의 적합등록 필증 <i>Registration of Broadcasting and Communication Equipments</i>	
상호 또는 성명 <i>Trade Name or Registrant</i>	R. STAHL HMI Systems GmbH
기기 명칭 <i>Equipment Name</i>	Operator HMI Panel
기본모델명 <i>Basic Model Number</i>	T-Ex-22
파생모델명 <i>Series Model Number</i>	
등록번호 <i>Registration No.</i>	KCC-REM-RS3-T-Ex-22
제조사/제조(조립)국가 <i>Manufacturer/Country of Origin</i>	R. STAHL HMI Systems GmbH / 독일
등록연월일 <i>Date of Registration</i>	2013-03-04
기타 <i>Others</i>	
<p>위 기기는 「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.</p> <p style="text-align: right;">2013년(Year) 03월(Month) 04일(Date)</p> <p style="text-align: center;">국립전파연구원장 </p> <p style="text-align: center;"><i>Director General of Radio Research Agency Korea Communications Commission Republic of Korea</i></p> <p style="text-align: center;">* 적합등록 방송통신기자재는 반드시 "적합성평가표시" 를 부착하여 유통하여야 합니다. 위반시 과태료 처분 및 등록이 취소될 수 있습니다.</p>	



7.1.2 T-Ex-22-DVI3 (ET-667-DVI3)


42CE-2851-1C8B-B4B7

방송통신기자재등의 적합등록 필증 <i>Registration of Broadcasting and Communication Equipments</i>	
상호 또는 성명 <i>Trade Name or Registrant</i>	R. STAHL HMI Systems GmbH
기자재 명칭 <i>Equipment Name</i>	Remote Operator Interface
기본모델명 <i>Basic Model Number</i>	ET-667-DVI3
파생모델명 <i>Series Model Number</i>	T-EX-22-DVI3, MT-667-DVI3
등록번호 <i>Registration No.</i>	MSIP-REM-RS3-ET-667-DVI3
제조사/제조(조립)국가 <i>Manufacturer/Country of Origin</i>	R. STAHL HMI Systems GmbH / 독일
등록연월일 <i>Date of Registration</i>	2013-08-20
기타 <i>Others</i>	
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. <div style="text-align: right;">2013년(Year) 08월(Month) 20일(Date)</div> <div style="text-align: center;">  국립전파연구원장 <i>Director General of National Radio Research Agency</i> </div>	
※ 적합등록 방송통신기자재는 반드시 "적합성평가표시" 를 부착하여 유통하여야 합니다. 위반시 과태료 처분 및 등록이 취소될 수 있습니다.	



7.1.3 T-Ex-24T (ET-x77 with Touch screen (foil))


8DC6-AD19-CC95-E279

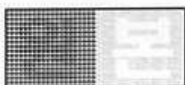
방송통신기자재등의 적합등록 필증 <i>Registration of Broadcasting and Communication Equipments</i>	
상호 또는 성명 <i>Trade Name or Registrant</i>	R. STAHL HMI Systems GmbH
기기 명칭 <i>Equipment Name</i>	Operator HMI Panel
기본모델명 <i>Basic Model Number</i>	T-Ex-24T
파생모델명 <i>Series Model Number</i>	
등록번호 <i>Registration No.</i>	KCC-REM-RS3-T-Ex-24T
제조사/제조(조립)국가 <i>Manufacturer/Country of Origin</i>	R. STAHL HMI Systems GmbH / 독일
등록연월일 <i>Date of Registration</i>	2012-11-06
기타 <i>Others</i>	
위 기기는 「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. 2012년(Year) 11월(Month) 06일(Date) <div style="text-align: center;">  국립전파연구원장 <i>Director General of Radio Research Agency</i> <i>Korea Communications Commission Republic of Korea</i> </div> ※ 적합등록 방송통신기자재는 반드시 "적합성평가표시" 를 부착하여 유통하여야 합니다. 위반시 과태료 처분 및 등록이 취소될 수 있습니다.	



7.1.4 T-Ex-KVM-DVI3 (6x7-KVM-DVI3)

C6C1-5F1D-5664-816E

방송통신기자재등의 적합등록 필증 <i>Registration of Broadcasting and Communication Equipments</i>	
상호 또는 성명 <i>Trade Name or Registrant</i>	R. STAHL HMI Systems GmbH
기자재 명칭 <i>Equipment Name</i>	Transmit Unit
기본모델명 <i>Basic Model Number</i>	KVM-DVI3
파생모델명 <i>Series Model Number</i>	T-EX-KVM-DVI3
등록번호 <i>Registration No.</i>	MSIP-REM-RS3-KVM-DVI3
제조사/제조(조립)국가 <i>Manufacturer/Country of Origin</i>	R. STAHL HMI Systems GmbH / 독일
등록연월일 <i>Date of Registration</i>	2013-08-20
기타 <i>Others</i>	
<p>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.</p> <p style="text-align: right;">2013년(Year) 08월(Month) 20일(Date)</p> <p style="text-align: center;">국립전파연구원장 </p> <p style="text-align: center;"><i>Director General of National Radio Research Agency</i></p> <p>※ 적합등록 방송통신기자재는 반드시 "적합성평가표시"를 부착하여 유통하여야 합니다. 위반시 과태료 처분 및 등록이 취소될 수 있습니다.</p>	



8 CEC / NEC / CSA certification



Certificate of Compliance

Certificate: 70011698	Master Contract: 213004
Project: 70011727	Date Issued: 2015-06-24
Issued to: R. STAHL HMI Systems GmbH Im Gewerbegebiet Pesch 14 Koeln, 50767 GERMANY Attention: Alexander Jung	

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *David Malloy*
David Malloy

PRODUCTS

CLASS - 2258 04	PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity - For Hazardous Locations
CLASS - 2258 84	PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity - For Hazardous Locations – Certified to US Standards

Ex ia IIC T4 Ga
Ex ia IIIB T110°C Da
Class I, Zone 0 AEx ia IIC T4 Ga
Zone 20 AEx ia IIIB T110°C Da

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*

Ratings: ambient temperature range -30°C to +60°C, IP20, Entity Parameters Described in table below providing associated intrinsically safe circuits when installed per control drawing 11100024 and operating instructions 6000076.

DOD 507 Rev. 2012-05-22
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Date Issued: 2015-06-24

Voltage U_i	5.5Vdc
Current I_i	1A
Power P_i	650mW
Effective internal capacitance C_i	20uf
Effective internal inductance L_i	Negligible

Conditions of Safe Use:

1. The Pointing Device shall not be used in areas where charging mechanism creating propagating brush discharges have to be regarded.

CLASS - 2258 02 PROCESS CONTROL EQUIPMENT – For Hazardous Locations
 CLASS - 2258 82 PROCESS CONTROL EQUIPMENT – For Hazardous Locations – Certified to US Standards

Ex e q [ia] IIC T4 Gb (Canada)
Class I, Zone 1 AEx e q [ia] IIC T4 Gb (US)

HMI Terminal Series ET-xx7, rated 20-30VDC (Class 2 supply), 5A or 100-240 VAC, 1A amps max, 150 watts max, ambient temperature range -30°C to +60°C, providing associated intrinsically safe circuits when installed per control drawing 11100024 and operating instructions 6000076.

Where:

<p>ET-4x7-a-b-c-d-e-f-g-h x=Display Size (6 (22”), 7 (24”), or 8 (24”WU)) a=Ethernet Interface (SX=fiber optic interface or TX=copper interface) b=Display Type (TFT) c=Touch Screen (T=foil or TG=glass) d=Main Memory (R1=1GB or R2=2GB) e=Data Memory (4GB, 16GB, 128GBM, 128GBS, or 100GB) f=Power Supply (AC or DC) g=Outdoor Option (O30= -30°C) h=Front Design (AL=aluminum front or RM=rear mounted)</p>	<p>ET-5x7-a-b-c-d-e-f x= Display Size (6 (22”), 7 (24”), or 8 (24”WU)) a=Ethernet Interface (SX=fiber optic or TX=copper interface) b=Display Type (TFT) c=Touch Screen (T=foil or TG=glass) d=Power Supply (AC or DC) e=Outdoor Option (O30=-30°C) f=Front Design (AL=aluminum front or RM=rear mounted)</p>	<p>ET-6x7-a-b-c-d-e-f x= Display Size (6 (22”), 7 (24”), or 8 (24”WU)) a=Transfer Technology (DV11-CAT, DV11-MM, DV11-SM, DV12-CAT, DV13-CAT, DV13-MM-FO, or DV13-SM-FO) b=Display Type (TFT) c=Touch Screen (T=foil or TG=glass) d=Power Supply (AC or DC) e=Outdoor Option (O30=-30°C) f=Front Design (AL=aluminum front or RM=rear mounted)</p>
--	---	--

Conditions of Safe Use:

1. Along the intrinsically safe circuits between the display unit and the keyboard/pointing device unit potential equalization must exist.
2. Any non-metallic parts of the HMI Terminal that can accumulate static electricity must be cleaned only with a damp cloth.



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Date Issued: 2015-06-24

3. Application supporting devices connected to the intrinsically safe input/outputs of connection points X101, X105, X97, X13, X14, and X16 shall be installed in a non-hazardous location (see control drawing 11100024) or must be suitable protected by an explosionproof or Ex p enclosure.
4. Connection point X10 shall be connected to a Class 2 supply for the DC model.
5. All connections to the display unit shall be installed using a CSA certified or usULc listed Ex e cable gland suitable for the end installation and shall carry a minimum IP rating of IP65.

Entity Parameters:

Display unit:

X11 (Keyboard Ex ia), X12 (pointing device Ex ia), X24 (USB1 Ex ia), X25 (USB2 Ex ia)	
$U_o = 5.5 \text{ VDC}$	$U_i = 5.5 \text{ VDC}$
$I_o = 309 \text{ mA}$	$I_i = 3 \text{ A}$
$P_o = 629 \text{ mW}$	$P_i = 2 \text{ W}$
$L_o = 40 \mu\text{H}$	$L_i = \text{negligible}$
$C_o = 50 \mu\text{F}$	$C_i = \text{negligible}$

Input Output Terminal Ratings:

"PWR" interface parameter for X10 (Ex e):	
U	100-240Vac 50/60Hz or 20-30Vdc
I	$\leq 5 \text{ A}$
P	$\leq 150 \text{ W}$
Maximum r.m.s. a.c. voltage $U_m \leq 250 \text{ V}$	

"USB" interface parameter for X13 (Ex e):	
U	AC/DC 5 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$	

"12V" interface parameter for X14 (Ex e):	
U	AC/DC 12V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$	

"CAT7 1" interface parameter for X16 (Ex e):	
U	AC/DC 5 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$	

"SER" interface parameter for X97 (Ex e):	
U	AC/DC 15 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250 \text{ V}$	



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"CAM" interface parameter for X101 (Ex e):	
U	AC/DC 5 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V	

"AUD" interface parameter for X105 (Ex e):	
U	AC/DC 100 V + 10%
Maximum r.m.s. a.c. or d.c. voltage $U_m \leq 250$ V	

Output Terminal Ratings:

Keyboard/pointing device Units

Keyboard Interface (X72) (Ex ia)	
Voltage U_i	5.5Vdc
Current I_i	1A
Power P_i	650mW
Effective internal capacitance C_i	20uf
Effective internal inductance L_i	Negligible
Trackball Interface X73 (Ex ia) type T-Ex *-KB-TB*	
Mouse Interface X94 (Ex ia) type T-Ex *-KB-M*	
Pad Interface X95 (Ex ia) type T-Ex *-KB-P*	
Voltage U_i	5.5Vdc
Current I_i	1A
Power P_i	650mW
Effective internal capacitance C_i	20uf
Effective internal inductance L_i	Negligible
Joystick Interface X96 (Ex ia) type T-Ex *-KB-J*	
Voltage U_i	5.5Vdc
Current I_i	1A
Power P_i	650mW
Effective internal capacitance C_i	40uf
Effective internal inductance L_i	Negligible

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*:	
X70 (FO1) – Single Mode type T-Ex-KVM*-SM*	
Wavelength	1310 nm
Nominal optical radiated power	0.22 mW
Maximum optical radiated power under fault conditions	35 mW
X70 (FO1) – Multi mode type T-Ex-KVM*-MM*	



Certificate: 70011698
Project: 70011727

Master Contract: 213004
Date Issued: 2015-06-24

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

Electrical data - Display unit

Thermal Data:

Temperature class: T4

Degrees of protection according to IEC 60529:

Display unit type T-Ex -##*-R2 IP65

Display unit type T-Ex -##* IP64

Keyboard/Trackball IP20

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-10 August 2011	General requirements — Canadian Electrical Code, Part II
CAN/CSA-C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements (Third Edition)
CAN/CSA-C22.2 No. 60079-0:11 (December 2011)	Explosive atmospheres – Part 0: Equipment – General requirements
CAN/CSA-C22.2 No. 60079-5:11 (December 2011)	Explosive atmospheres – Part 5: Equipment protection by powder filling “q”
CAN/CSA-C22.2 No. 60079-7:12 (February 2012)	Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
CAN/CSA-C22.2 No. 60079-11:11 (December 2011)	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
CAN/CSA-C22.2 No. 60529:05 (Reaffirmed 2010)	Degrees of protection provided by enclosures (IP Code)
ANSI/UL 61010-1:2012	Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements (Third Edition)
ANSI/UL 60079-0 Sixth Edition (July 26, 2013)	Explosive atmospheres – Part 0: Equipment – General requirements
ANSI/UL 60079-5 Third Edition (November 22, 2013)	Explosive Atmospheres – Part 5: Equipment protection by powder filling “q”
ANSI/UL 60079-7 Fourth Edition (May 31, 2013)	Explosive Atmospheres – Part 7: Equipment protection by increased safety “e”
ANSI/UL 60079-11 Sixth Edition (March 28, 2014)	Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety “i”
ANSI/IEC 60529-2004	Degrees of Protection Provided by Enclosures (IP Code)



Certificate: 70011698

Master Contract: 213004

Project: 70011727

Date Issued: 2015-06-24

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Nameplate adhesive label material approval information:

The following markings are provided on labels that are applied legibly and permanently by means of stickers printed using a suitable procedure, engraving or laser-printing, according to applicable standards. It can be engraved, laser marked, printed and laminated to foil material used from Avery-Zweckform Typ 3480 or similar. If a sticker is used, the material will be temperature-resistant up to $\geq 120^{\circ}\text{C}$, such as "3M Scotchcal color foil 3690".

- Manufacturer's name: "R Stahl ", or CSA Master Contract Number "213004", adjacent to the CSA Mark in lieu of manufacturer's name.
- Model number: As specified in the PRODUCTS section, above.
- Electrical ratings: As specified in the PRODUCTS section, above.
- Ambient temperature rating: As specified in the PRODUCTS section, above.
- Manufacturing date in MMY format, or serial number, traceable to year and month of manufacture.
- Enclosure ratings: As specified in the PRODUCTS section, above.
- The CSA Mark, as shown on the Certificate of Conformity followed by the certificate reference in the following form; the last two figures of the year of the certificate followed by the certificate number of this report followed by an "X" (example: CSA 14.70011698X)
- Hazardous Location designation: As specified in the PRODUCTS section, above
- Temperature code: As specified in the PRODUCTS section, above.
- Warning near the Ex e connection box: "Isolate supply and all Ex e and Ex ia circuits, wait 7 minutes before opening the Ex e connection box!" and "Isoler l'alimentation et tous Ex e et Ex ia circuits , attendre 7 minutes avant d'ouvrir le boîtier de raccordement Ex e" or equivalent.
- Protective earthing TERMINAL is identified by the letter "PE/EARTH", adjacent to the TERMINAL;
- The following words:
 - "[Ex ia]"
 - The words: "ASSOCIATED EQUIPMENT"
 - "WARNING: Substitution of components may impair intrinsic safety."
 - "AVERTISSEMENT : La substitution de composants peut compromettre la securite intrinseque"
 - "Install per drawing 6000076



Certificate: 70011698

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DOCUMENTATION

Equipment is accompanied by the following documentation. See Att1.

- Manufacturer's name and address
- Electrical ratings:
- Specification for ambient temperature rating
 - $-40^{\circ}\text{C} \leq T_a \leq 80^{\circ}\text{C}$
- Specification for process pressure ratings.
- Specification for appropriate wiring to the connector, including definition of pin functions, and specification for wire gauge.
- The intended use of the equipment.
- Specification for the pollution degree rating
 - Pollution Degree IV
- Specification for the relative humidity
- Specification for the altitude rating
- Specification for overvoltage category
 - Overvoltage Category II
- Mounting and installation instructions, including dimensions.
- Enclosure Rating, "IP66"



Supplement to Certificate of Compliance

Certificate: 70011698

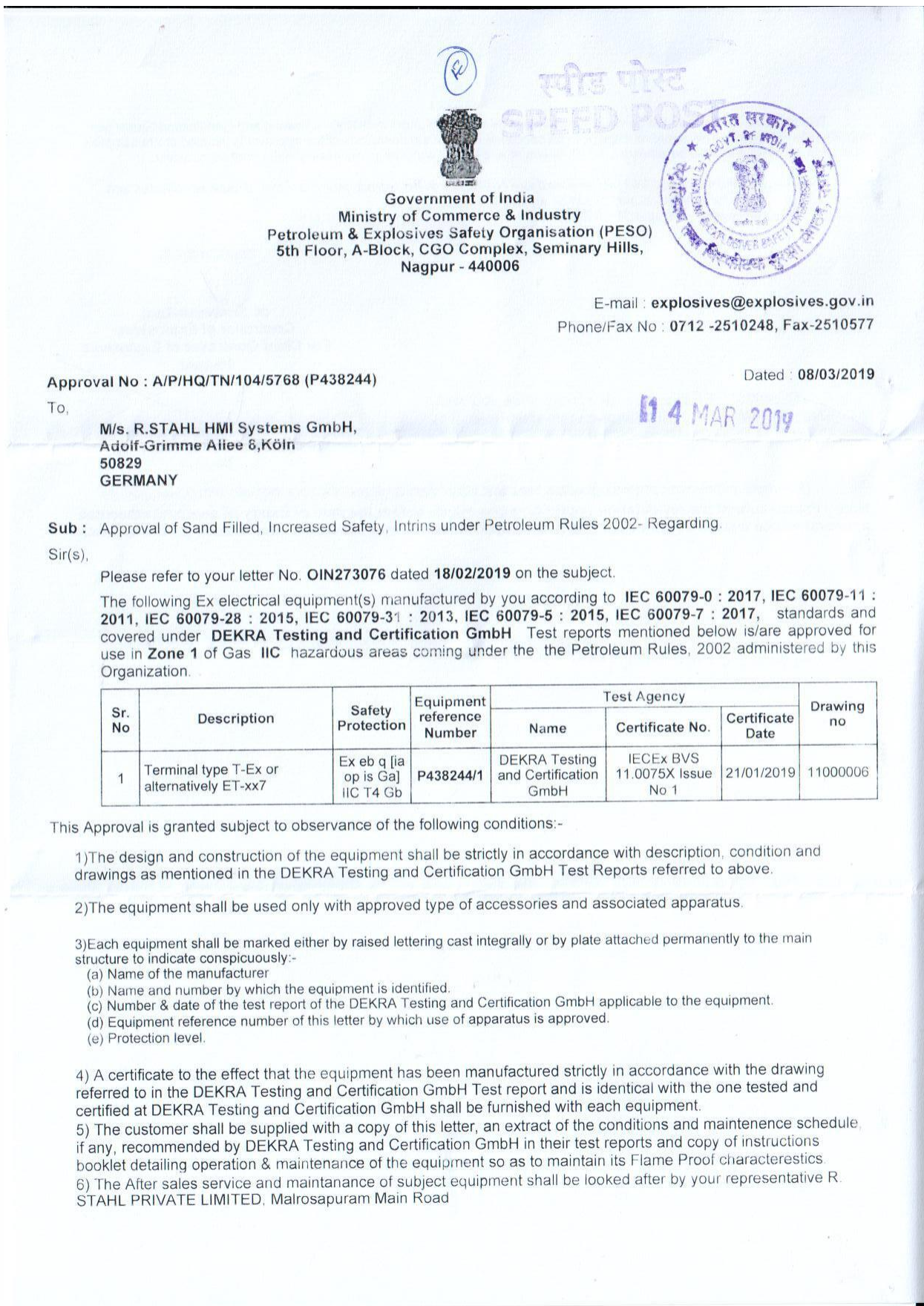
Master Contract: 213004

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
70011727	2015-06-24	Project 3 of 3 - Update to report 70011698 from CSA 142 and UL 508 to CSA/UL/IEC 61010.
70011724	2014-12-12	Update to report 70011698 to evaluate to US requirements.
70011698	2014-11-20	Original certification of the T-Ex.

9 PESO certification



This approval also covers the permissible variations as approved under the DEKRA Testing and Certification 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 **31/12/2023**

Yours faithfully,

(K Srinivasa Rao)
Controller of Explosives
For Chief Controller of Explosives
Nagpur

- Copy to :
- 1. Jt. Chief Controller of Explosives, East Circle office, KOLKATA
 - 2. R. STAHL PRIVATE LIMITED, Malrosapuram Main Road

for Chief Controller of Explosives
Nagpur

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

Note:- Please submit the revalidation application one month before the date of Expiry of approval otherwise approval will be treated as cancelled and a fresh application for approval will be considered for the approval.

10 Release Notes

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

Version 01.03.04

- Including of DNV / GL certificate
- Removing of Declaration of EC conformity (because it's in the OI)
- Formal changes

Version 01.03.05

- Removing previous release notes
- Changing note according to DNV / GL certificate

Version 01.03.06

- Including of PESO certificate
- Formal changes

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THE STRONGEST LINK.