Operating Instructions

Remote HMI
T-Ex Series

R. STAHL HMI Systems GmbH
Im Gewerbegebiet Pesch 14
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1 Product names and Ex-certificates

Display unit type: **T-Ex-##*-CAT7***
T-Ex-##*-MM*
T-Ex-##*-SM*

ATEX gas: II 2(1) G Ex e q [ia op is Ga] IIC T4 Gb
ATEX dust: II 2(1) D Ex tb IIIC [ia op is Da] IP64 T110°C Db

IECEx gas: Ex e q [ia op is Ga] IIC T4 Gb
IECEx dust: Ex tb IIIC [ia op is Da] IP64 T110°C Db

Ta = -30°C ... +60°C (certification temperature range)

Keyboard Trackball unit type: **T-Ex*-KB-TB***
Keyboard Mouse unit type: **T-Ex*-KB-M***
Keyboard Touchpad unit type: **T-Ex*-KB-P***
Keyboard Joystick unit type: **T-Ex*-KB-J***

ATEX gas: II 1 G Ex ia IIC T4 Ga
ATEX dust: II 1 D Ex ia IIIB T110°C Da

IECEx gas: Ex ia IIC T4 Ga
IECEx dust: Ex ia IIIB T110°C Da

Ta = -30°C ... +60°C (certification temperature range)

Transmission unit type: **T-Ex-KVM*-MM***
T-Ex-KVM*-SM*

ATEX gas: II (1) G [Ex op is Ga] IIC (FO version only)
ATEX dust: II (1) D [Ex op is Da] IIIB (FO version only)

IECEx gas: [Ex op is Ga] IIC (FO version only)
IECEx dust: [Ex op is Da] IIIB (FO version only)

Ta = -30°C ... +60°C (certification temperature range)

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

For further details, see certificates and technical data !

2 Technical data

2.1 Display unit

T-Ex-##*-CAT7*	(type for CAT7 cable)
T-Ex-##*-MM*	(type for multi mode FO cable)
T-Ex-##*-SM*	(type for single mode FO cable)

Housing type:	Steel
Protection:	IP66 at the front, IP64 at the back
Resolution:	1280 x 1024 pixel, 4:3 ratio, 19“ display size 1680 x 1050 pixel, 16:10 ratio, 22“ display size 1920 x 1080 pixel, 16:9 ratio, 24“ display size
Visualization of resolution:	1:1 (standard for KVM USB) scaling (standard for KVM DVI, optional for KVM USB)
Brightness:	typ. 250 cd/m² @ Ta 20°C (68°F) via LED or CFL backlight (depend of display size)
Touch option:	5-wire resistive touch, foil surface
For KVM USB:	
Certification temperature:	-30°C to +60°C (-22°F to 140°F)
Cold start temperature:	-10°C to +50°C (-14°F to 122°F)
During operation:	-20°C to +50°C (-4°F to 122°F)
Operation with heater[1)]:	-30°C to +50°C (-22°F to 122°F)
Short term temperature:	-30°C to +60°C (-22°F to 140°F)
Temp. when fixed in enclosure:	-20°C to +50°C (-4°F to 122°F)
Storage temperature:	-20°C to +70°C (-4°F to 158°F) 10 to 90% relative humidity @ 40°C (104°F), non-condensing
For KVM DVI:	
Certification temperature:	-30°C to +60°C (-22°F to 140°F)
Cold start temperature:	+5°C to +40°C (41°F to 104°F)
During operation:	+5°C to +40°C (41°F to 104°F)
Operation with heater[1)]:	+5°C to +40°C (41°F to 104°F)
Short term temperature:	+5°C to +40°C (41°F to 104°F)
Temp. when fixed in enclosure:	+5°C to +40°C (41°F to 104°F)
Storage temperature:	-20°C to +70°C (-4°F to 158°F) 20 to 80% relative humidity @ 40°C (104°F), non-condensing

[1)] The used heater must be constructed in the way, that inside of the enclosure the temperature will not fall below -20°C (-4°F).

Ex-certificates:	Zone 1[0], Zone 21[20], EPL Gb[Ga], EPL Db[Da] see certificates
Dimensions:	607 mm x 422 mm x 112 mm (23.9” x 16.61” x 4.41”), see technical drawings in the manual
Weight:	40 kg typ. (88.2 lb), depending on version
Mounting type:	fixed mounting
Power supply:	100-240 VAC, 50-60 Hz, 35 W typ. / maximum 150 W (typ. 119BTU / max. 510BTU), recommended protection 2.0 AT

MTBF:	min. / typ. 50,000 h @ Ta 20°C (68°F) and intended use
Data cable length KVM USB CAT7:	up to 150 m (490 ft) via CAT7 installation cable AWG22
Data cable length KVM DVI CAT7:	up to 140 m (460 ft) via CAT7 installation cable AWG22
Data cable length FO multi mode: (available for KVM USB)	up to 500 m (1640 ft) via 50/125 µm FO cable up to 300 m (985 ft) via 62,5/125 µm FO cable
Data cable length FO single mode: (available for KVM USB)	up to 10,000 m (33,000 ft) via 9/125 µm FO cable
Interfaces/Connections:	see section: “interfaces and connections: display unit”

2.2 Keyboard units

T-Ex*-KB-TB*	(type Keyboard Trackball Unit)
T-Ex*-KB-M*	(type Keyboard Mouse Unit)
T-Ex*-KB-P*	(type Keyboard Touchpad Unit)
T-Ex*-KB-J*	(type Keyboard Joystick Unit)

Housing type:	Steel/Aluminium
Surface foil:	polyester
Protection:	IP65/IP54 static/dynamic at the front, minimum IP20 at the back
Operating temperature range:	-30°C to +60°C (-22°F to 140°F) relative humidity: 10 to 90%, non-condensing
Storage temperature range:	-30°C to +70°C (-22°F to 158°F) relative humidity: 10 to 90%, non-condensing
Ex-Certificates:	Zone 0, Zone 20, EPL Ga, EPL Da see certificates
Dimensions:	581 mm x 186 mm x 50 mm (22.87” x 7.32” x 1.97”), see technical drawings in the manual
Weight:	3 kg typ. (6.6 lb), depending on version
Mounting type:	fixed mounting
Power supply	via USB interfaces
MTBF:	min. / typ. 50,000 h @ Ta 20°C (68°F) and intended use
Interfaces/connections:	see section: “interfaces and connections: display unit”

2.3 Transmission units

T-Ex-KVM*-MM*	(type for multi mode FO cable)
T-Ex-KVM*-SM*	(type for single mode FO cable)

Housing type:	Desktop
Protection:	min. IP20
For KVM USB:	
Certification temperature:	-30°C to +60°C (-22°F to 140°F)
Cold start temperature:	-10°C to +50°C (-14°F to 122°F)
During operation:	-20°C to +50°C (-4°F to 122°F)
Short term temperature:	-30°C to +60°C (-22°F to 140°F)
Storage temperature:	-20°C to +70°C (-4°F to 158°F) 10 to 90% relative humidity @ 40°C (104°F), non-condensing
For KVM DVI:	
Certification temperature:	-30°C to +60°C (-22°F to 140°F)
Cold start temperature:	+5°C to +40°C (41°F to 104°F)
During operation:	+5°C to +40°C (41°F to 104°F)
Short term temperature:	+5°C to +40°C (41°F to 104°F)
Storage temperature:	-20°C to +70°C (-4°F to 158°F) 20 to 80% relative humidity @ 40°C (104°F), non-condensing
Ex-certificates:	Zone [0], Zone [20], EPL [Ga], EPL [Da], LWL versions only, see certificates
Dimensions KVM USB:	145 mm x 44.45 mm x 165 mm (5.71” x 1.75” x 6.5”) see technical drawings in the manual
Dimensions KVM DVI:	210 mm x 44 mm x 210 mm (8.27” x 1.73” x 8.27”) see technical drawings in the manual
Weight:	1 kg typ., (2.2 lb), depending on version
Mounting type:	typ. corresponding equipment
Power supply:	100-240 VAC, 50-60 Hz, 5 W typ. / maximum 10 W (typ. 17BTU / max. 34BTU), recommended protection 1.0 AT
MTBF:	min. / typ. 50,000 h @ Ta 20°C (68°F) and intended use
Data cable length KVM USB CAT7:	up to 150 m (490 ft) via CAT7 installation cable AWG22
Data cable length KVM DVI CAT7:	up to 140 m (460 ft) via CAT7 installation cable AWG22
Data cable length FO multi mode: (available for KVM USB)	up to 500 m (1640 ft) via 50/125 µm FO cable up to 300 m (985 ft) via 62,5/125 µm FO cable
Data cable length FO single mode: (available for KVM USB)	up to 10,000 m (33,000 ft) via 9/125 µm FO cable
Interfaces/connections:	see section: “interfaces and connections: transmission unit”

2.4 Enclosure

HSG-Txx-V2A-PME-W	desk enclosure, wall mounting
HSG-Txx-V2A-PME-F	desk enclosure, floor mounting
HSG-Txx-V2A-FXE-W	strut enclosure, wall mounting
HSG-Txx-V2A-FXE-F	strut enclosure, floor mounting
HSG-Txx-V2A-FXE-C	strut enclosure, ceiling mounting

Protection:	Typ. IP65 when all assembly and mounting holes appropriate closed
Lock:	Typ. two way key bit
Material:	Typ. 1.4301 (DIN/EN), 304 (ASTM), 304 S 31 (BS)
Surface:	Typ. 240 grinding
Mounting pipe MPF, MPC, MPW:	Typ. 1.4301 (DIN/EN), 304 (ASTM), 304 S 31 (BS), 60.3 mm x 2 mm, min. 470 N/mm² (EN10217-7)
Operating temperature range	-30°C to +60°C (-22°F to 140°F) relative humidity: 10 to 90%, non-condensing
Storage temperature range:	-30 °C to +70°C (-22°F to 158°F) relative humidity: 10 to 90%, non-condensing
Dimensions:	750 mm x 665 mm x 243 mm (29.54” x 26.18” x 9.56”), see technical drawings in the manual
Weight:	19.5 kg typ., (43 lb), depending on version

3 Interfaces and connection details

3.1 Display

PWR (Power): **X10**, terminal 1-3, Ex e, increased safety:

terminal X10-1: L
terminal X10-2: N
terminal X10-3: Earth

0.2 – 2.5 mm² / 24 AWG - 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG - 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact

U_{typ} ≤ 100 V…240 VAC
I_{max} ≤ 5 A
P_{max} ≤ 150 W
U_m ≤ 250 V
I_k ≤ 1500 A

USB: **X13**, terminal 1-4, Ex e, increased safety:

terminal X13-1: +UB (typ. colour: red)
terminal X13-2: D- (typ. colour: white)
terminal X13-3: D+ (typ. colour: green)
terminal X13-4: GND (typ. colour: black)

0.2 – 2.5 mm² / 24 AWG - 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG - 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_{typ} ≤ 5 V (±10%)
U_m ≤ 250 V

12 V: **X14**, terminal 1-2, Ex e, increased safety:

terminal X14-1: +12 V (typ. colour: red)
terminal X14-2: GND (typ. colour: black)

0.2 – 2.5 mm² / 24 AWG - 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_{typ} ≤ 12 V (±10%)
$I_{max.}$ ≤ 400 mA
U_m ≤ 250 V

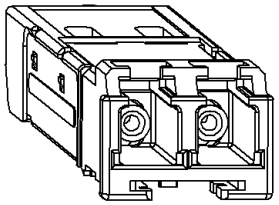
CAT7 1 (Data): **X16**, terminal 1-9, Ex e, increased safety:

terminal X16-1:	TRD0+	(typ. colour: white/orange)
terminal X16-2:	TRD0-	(typ. colour: orange)
terminal X16-3:	TRD1+	(typ. colour: white/green)
terminal X16-4:	TRD1-	(typ. colour: green)
terminal X16-5:	TRD2+	(typ. colour: white/blue)
terminal X16-6:	TRD2-	(typ. colour: blue)
terminal X16-7:	TRD3+	(typ. colour: white/brown)
terminal X16-8:	TRD3-	(typ. colour: brown)
terminal X16-9:	SHLD	(typ. colour: shield)

0.2 – 2.5 mm² / 24 AWG – 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max.1 cable per contact

$U_{typ} \leq 5$ V (±10%)
$U_m \leq 250$ V

FO 1 (Data): **X18**, terminal TX-RX, Ex op is, inherent safe optical radiation:



LC Duplex connector

Multimode: preferred for 50/125 µm, max. 35 mW, 850 nm
Single-mode: preferred for 9/125 µm, max. 35 mW, 1310 nm

KBi (Keyboard): **X11**, terminal 1-4, Ex ia, intrinsically safe:

terminal X11-1: +UB (typ. colour: red)
terminal X11-2: D- (typ. colour: white)
terminal X11-3: D+ (typ. colour: green)
terminal X11-4: GND (typ. colour: black)

0.2 – 2.5 mm² / 24 AWG -16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 3 A	I_o	= 309 mA
P_I	= 2 W	P_o	= 629 mW
C_I	= negligible	C_o	= 50 µF
L_I	= negligible	L_o	= 40 µH

Mi (Mouse): **X12**, terminal 1-4, Ex ia, intrinsically safe:

terminal X12-1: +UB (typ. colour: red)
terminal X12-2: D- (typ. colour: white)
terminal X12-3: D+ (typ. colour: green)
terminal X12-4: GND (typ. colour: black)

0.2 – 2.5 mm² / 24 AWG – 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_I	= 5.5 V	U_o	= 5,5 V
I_I	= 3 A	I_o	= 309 mA
P_I	= 2 W	P_o	= 629 mW
C_I	= negligible	C_o	= 50 µF
L_I	= negligible	L_o	= 40 µH

USB1i: **X24**, terminal 1-4, Ex ia, intrinsically safe:

terminal X24-1: +UB (typ. colour: red)
terminal X24-2: D- (typ. colour: white)
terminal X24-3: D+ (typ. colour: green)
terminal X24-4: GND (typ. colour: black)

0.2 – 2.5 mm² / 24 AWG – 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_I	= 5.5 V	U_o	= 5,5 V
I_I	= 3 A	I_o	= 309 mA
P_I	= 2 W	P_o	= 629 mW
C_I	= negligible	C_o	= 50 µF
L_I	= negligible	L_o	= 40 µH

USB2i: **X25**, terminal 1-4, Ex ia, intrinsically safe:

terminal X25-1:	+UB	(typ. colour: red)
terminal X25-2:	D-	(typ. colour: white)
terminal X25-3:	D+	(typ. colour: green)
terminal X25-4:	GND	(typ. colour: black)

0.2 – 2.5 mm² / 24 AWG – 16 AWG for flexible cable
0.2 – 4 mm² / 24 AWG – 14 AWG for rigid cable
Strip length 7 mm (0.28”)
Max. 1 cable per contact
Recommended cable length max. 3 m (10 ft)

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 3 A	I_o	= 309 mA
P_I	= 2 W	P_o	= 629 mW
C_I	= negligible	C_o	= 50 µF
L_I	= negligible	L_o	= 40 µH

Note: USB2i not available when touch option selected. Do not connect !

The cable glands of the connection box must be Ex e types or must be in accordance to the country specific regulations and have to be changed if necessary. The pre manufactured cable gland threads are M16x1.5 and M20x1.5. The wall thickness to mount the cable glands are min. 4 mm.

For pre-mounted ATEX-certified cable glands:

Cable gland M16 for round cable, outer diameter of cable: 5...9 mm (0.2“...0.35“).

Cable gland M20 for round cable, outer diameter of cable: 9...13 mm (0.35“...0.51“).

Only permanently laid cables may be entered. The end user must guarantee suitable clamping. In case of pre mounted ATEX certified cable glands possible changing of the ambient parameters e.g. like ambient temperature range must be observed.
The EC-Type examination certificate of respective cable glands (DMT 99 ATEX E 016 or KEMA 99 ATEX 6971X resp. IECEx KEM 07.00144X) will be send on request.

For information on general installation refer to document:
HM_RemoteHMI_T-Ex_en_V_1_01_01.pdf

3.2 Keyboard trackball unit

KBi (Keyboard): **X72**, pre-mounted cable, Ex ia, intrinsically safe:

wire X72-1 (typ. colour: red):	+UB
wire X72-2 (typ. colour: white):	D-
wire X72-3 (typ. colour: green):	D+
wire X72-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

Mi (Mouse): **X73**, pre-mounted cable 1-4, Ex ia, intrinsically safe:

wire X73-1 (typ. colour: red):	+UB
wire X73-2 (typ. colour: white):	D-
wire X73-3 (typ. colour: green):	D+
wire X73-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

3.3 Keyboard mouse unit

KBi (Keyboard): **X72**, pre-mounted cable, Ex ia, intrinsically safe:

wire X72-1 (typ. colour: red):	+UB
wire X72-2 (typ. colour: white):	D-
wire X72-3 (typ. colour: green):	D+
wire X72-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

Mi (Mouse): **X94**, pre-mounted cable 1-4, Ex ia, intrinsically safe:

wire X94-1 (typ. colour: red):	+UB
wire X94-2 (typ. colour: white):	D-
wire X94-3 (typ. colour: green):	D+
wire X94-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

3.4 Keyboard pad unit

KBi (Keyboard): **X72**, pre-mounted cable, Ex ia, intrinsically safe:

wire X72-1 (typ. colour: red):	+UB
wire X72-2 (typ. colour: white):	D-
wire X72-3 (typ. colour: green):	D+
wire X72-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

Pi (Pad): **X95**, pre-mounted cable 1-4, Ex ia, intrinsically safe:

wire X95-1 (typ. colour: red):	+UB
wire X95-2 (typ. colour: white):	D-
wire X95-3 (typ. colour: green):	D+
wire X95-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

3.5 Keyboard joystick unit

KBi (Keyboard): **X72**, pre-mounted cable, Ex ia, intrinsically safe:

wire X72-1 (typ. colour: red):	+UB
wire X72-2 (typ. colour: white):	D-
wire X72-3 (typ. colour: green):	D+
wire X72-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 20 µF	C_o	= 30 µF
L_I	= negligible	L_o	= 5 µH

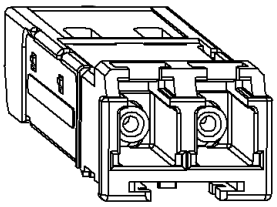
Ji (Joystick): **X96**, pre-mounted cable 1-4, Ex ia, intrinsically safe:

wire X96-1 (typ. colour: red):	+UB
wire X96-2 (typ. colour: white):	D-
wire X96-3 (typ. colour: green):	D+
wire X96-4 (typ. colour: black):	GND

U_I	= 5.5 V	U_o	= 5.5 V
I_I	= 0.8 A	I_o	= I_I
P_I	= 650 mW	P_o	= P_I
C_I	= 40 µF	C_o	= 10 µF
L_I	= negligible	L_o	= 5 µH

3.6 Transmission unit

FO 1 (Data): **X70**, terminal TX-RX, Ex op is, inherently safe optical radiation:

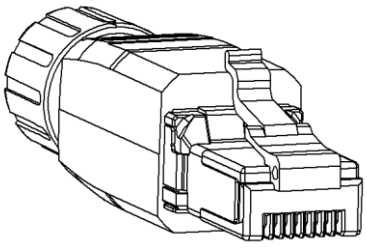


TX RX

LC Duplex connector

Multimode: preferred for 50/125 µm, max. 35 mW, 850 nm
Single-mode: preferred for 9/125 µm, max. 35 mW, 1310 nm

CAT7 (Data): **X0**, terminal 1-8, RJ45 Data interface:



1 8

terminal X0-1:	TRD0+	(typ. colour: white/orange)
terminal X0-2:	TRD0-	(typ. colour: orange)
terminal X0-3:	TRD1+	(typ. colour: white/green)
terminal X0-4:	TRD2+	(typ. colour: blue)
terminal X0-5:	TRD2-	(typ. colour: white/blue)
terminal X0-6:	TRD1-	(typ. colour: green)
terminal X0-7:	TRD3+	(typ. colour: white/brown)
terminal X0-8:	TRD3-	(typ. colour: brown)
terminal X0-SHLD:	SHLD	(typ. colour: shield)

Recommended connector: Phoenix Contact VS-08-RJ45-5-Q/IP20
0.14 – 0.36 mm² / 26 AWG – 22 AWG for flexible cable
0.13 – 0.32 mm² / 26 AWG – 22 AWG for rigid cable
Connection method: IDC/insulation displacement contacts in acc. with IEC 60352-4
Connection in acc. with TIA-568 B

4 Safety instructions

4.1 General safety instructions

- All the relevant accident prevention regulations and the regulations for electrical installations must be observed during installation, maintenance work and operation. All persons involved in the installation, commissioning, operation, maintenance and servicing of this devices and its accessories must be qualified and familiar with this manual and associated documents.
- In case of non-observance and non-compliance, the warranty of the specified explosion protection and the warranty claim expire.
- The national safety regulations and accident prevention regulations are to be observed.
- The device may only be used for its intended purpose.
- Modifications and changes of the equipment are not permitted. The housing of the devices is only to be opened by R. STAHL HMI Systems GmbH.
- The first four digits of the serial number on the nameplate provide the year of manufacture.

4.2 Installation – safety instructions

- The national assembly and installation instructions and technical standards are to be observed. Equipment and accessories must be connected and operated according to the standards, regulations and installations instructions. Installation is to be carried out by qualified or trained staff members only.
- Use only appropriate tools for installation.
- The cable glands of the connection box must comply with the country-specific standards and if necessary, must be adjusted. Any changes in environment parameters, e.g. ambient temperature, must be observed. The outer diameter of the cables must comply with the specifications of the cable glands. Tighten the cable glands according to the instructions. Unused cable glands must be sealed with a suitable dummy plug. In case of pre mounted ATEX cable glands only permanently laid cables may be entered.
- Ex e and Ex i circuits must be complete de-energized when connecting the device. Isolate supply and all Ex e and Ex i circuits and wait 7 minutes before opening the Ex e connection box. Do not open the connection box when the device is powered and live. Ensure the power supply is isolated. The cable diameter has to comply to the specification of the terminals. The Ex e connection box must be seal locked.
- Equipment must be earthed with a core cross section of at least 4 mm² or regarding the according standards. Always ensure equipotential bonding between the electrical equipment.
- Shielded cables are recommended for this device. Interconnections of the data cable can influent the performance. Cables for intrinsically safe wiring have to pass a test voltage of AC 500 V / DC 750 V. Use the values 200 pF/m and 1 µH/m at unknown cable properties.

- At the place of installation, a maximum voltage of 250 V and a short circuit current of 1.500 A must not be exceeded.
- When the interface of intrinsically safe devices/partial intrinsically safe devices was or is connected to not intrinsically safe interfaces, the license will become void and it must be operated as a not intrinsically safe device. If the device was operated on an intrinsically safe interface with a lower level of international protection (e.g. a Ex ia device on a Ex ib interface), it must not be operated afterwards in applications for a higher level of international protection (e.g. Ex ia).
- If the device in a dust atmosphere is to be replaced, the device and/or the housing, in which the device is installed, is to be de-energized first and if necessary cooled according to the regulations. Before opening the device and/or housing and during period in which the device and/or the housing is open, the environment of the device and/or housing has to be kept dust-free to such an extent that no dust can enter the interior of the housing. When installing new components observe that all seals are in a flawless condition and function properly.
- Before initial operation, make sure that equipment has been properly installed, and ensure that the wiring is not damaged.

4.3 Operating instructions

- Equipment must be operated in undamaged, clean condition only. Do not touch damaged equipment, this can cause a risk of injury. In case of any damage that might affect the IP protection (e.g. cracks, holes, or broken components), the equipment must be taken out of service immediately. Before putting the equipment into operation again, all damaged components must be replaced.
- For use respective category 1D/2D/3D or EPL Da/Db/Dc dust layers > 5 mm have to be removed and high energy load mechanism at the operating surface of the unit respectively equipment (for example pneumatic particle transport) have to be excluded. Do not use the device in areas where propagating brush discharges are to expect.
- General and especially during opening or closing of the enclosure pay attention that no injury of the operator e.g. clamping occur.
- In the event of non-observance & non-compliance the stipulated explosion protection cannot be guaranteed and/or the guarantee will become void !

5 General instruction

Please read this manual before installation ! In case of doubt (in regards to the translation), the German version of the manual will prevail. We do not assume any liability for any misprints or errors in this manual.

Should you have any questions or suggestions, please contact R. STAHL HMI Systems.

5.1 Technology advances

Any changes and modifications shall require the written approval of R. STAHL HMI Systems GmbH. The producer reserves the right to adapt technical data to technological advances without prior notice.

5.2 Repair/hazardous materials

Equipment to be repaired by and shipped to R. STAHL HMI Systems GmbH must include a detailed error description.

Before shipping of the equipment, any adhering materials must be removed, in particular seal channels and gaps. Please do not return any equipment if hazardous substances cannot be removed completely. Should disposal of equipment become necessary, the proprietor of the equipment will be charged with any costs arising from insufficient cleaning or personal injuries (e.g. chemical cauterization).

5.3 Use of trademarks

All trademarks (product names, logos) in this text are the property of the respective owners and are considered protected.

5.4 SCREEN-TEC GmbH

SCREEN-TEC GmbH and R. STAHL HMI Systems GmbH shall be merging to form one company trading under the name of R. STAHL HMI Systems GmbH.
From June 2011 onwards, R. STAHL HMI GmbH shall assume legal succession of SCREEN-TEC GmbH.
SCREEN-TEC GmbH shall cease to exist after May 31st, 2011.

6 Declaration of EC conformity

EG-Konformitätserklärung
EC-Declaration of Conformity
Déclaration de Conformité CE

R. STAHL HMI Systems GmbH • Im Gewerbegebiet Pesch 14 • 50767 Köln, Germany
erklärt in alleiniger Verantwortung, *declares in its sole responsibility, déclare sous sa seule responsabilité,*

dass das Produkt *that the product* *que le produit*	T-Ex *T-Ex* *T-Ex*
Typ, *type, type:*	Display Unit T-EX-##*-CAT7* Display Unit T-EX-##*-MM* Display Unit T-EX-##*-SM* Keyboard Trackball Unit T-EX*-KB-TB* Keyboard Mouse Unit T-EX*-KB-M* Keyboard Pad Unit T-EX*-KB-P* Keyboard Joystick Unit T-EX*-KB-J* Transmission Unit T-EX-KVM*-CAT7* Transmission Unit T-EX-KVM*-MM* Transmission Unit T-EX-KVM*-SM* *=any alphanumeric or symbolic character, without relevance for explosion protection #=one numeric character, without relevance for explosion protection
Kennzeichnung, *marking, marquage:*	For Display Unit: 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 For Keyboard Trackball Unit, for Keyboard Mouse Unit, for Keyboard Pad Unit, for Keyboard Joystick Unit: II 1 G Ex ia IIC T4 Ga II 1 D Ex ia IIIB T110°C Da For Transmission Unit: II (1) G [Ex op is Ga] IIC II (1) D [Ex op is Da] IIIB
mit der EG-Baumusterprüfbescheinigung, ***ausgestellt durch Benannte Stelle:*** *under EC-Type Examination Certificate,* *issued by notified body:* *avec Attestation d'examen CE de type,* *exposé par organisme notifié:*	BVS 11 ATEX E102 X DEKRA EXAM GmbH Dinnendahlstraße 9, 44809 Bochum

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
which is the subject of this declaration, is in conformity with the following standards or normative documents
auquel cette déclaration se rapporte, est conforme aux normes ou aux documents normatifs suivants

Bestimmungen der Richtlinie *Terms of the directive* *Prescription de la directive*	Nummer sowie Ausgabedatum der Norm *Number and date of issue of the standard* *Numéro ainsi que date d'émission de la norme*
94/9/EG: ATEX-Richtlinie *94/9/EC: ATEX Directive* *94/9/CE: Directive ATEX*	EN 60079-0: 2009 EN 60079-5: 2007 EN 60079-7: 2007 EN 60079-11: 2007 EN 60079-26: 2007 EN 60079-28: 2004 EN 60079-31: 2009 EN 61241-11: 2006

Datei: CE_T-Ex_20110701.docx Vorlage: F058_EG-Konformitätserklärung-HMI_20110525.docx

EG-Konformitätserklärung
EC-Declaration of Conformity
Déclaration de Conformité CE

2004/108/EG:	**EMV-Richtlinie**	EN 61000-6-2: 2006
2004/108/EC:	*EMC Directive*	EN 61000-6-4: 2007
2004/108/CE:	*Directive CEM*	

Köln, 01.07.2011

Ort und Datum
Place and date
Lieu et date

J. Düren
Technical Director

W. Bertges
Quality Manager

Datei: CE_T-Ex_20110701.docx

Vorlage: F058_EG-Konformitätserklärung-HMI_20110325.docx

7 Release notes

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

Version 1.00.00

- First version
- Inclusion disclamer
- Inclusion of assuming legal succession of SCREEN-TEC GmbH

Version 1.01.00

- Splitting of documentation in operation instruction, manual and certificates
- Inclusion of hardware revision
- Reduction of the operating instruction to "old" chapter 5 to 9 and declaration of EC conformity
- Changing from the names of the devices to new definition
- Text corrections
- Correction of the dimensions from the display unit and keyboard
- Including of declaration of conformity

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