



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **CSANe 25ATEX1027** Issue: **0**

4 Equipment: **TREX2 Device Communicator**

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

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

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 IEC 60079-11:2023 Ed 7 EN 60079-11:2012

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2G (1GD)
Ex ia [ia Ga] [ia Da IIIC] IIC T4 Gb
-20°C ≤ Tamb ≤ 50 °C

Signed: M Halliwell

Title: Senior Director of Operations



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SCHEDULE

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Issue 0

13 DESCRIPTION OF EQUIPMENT

The TREX2 Device Communicator is a handheld, battery-powered, intrinsically safe, portable maintenance tool, typically for use in a process plant.

The device communicates with microprocessor-based measurement and actuation field devices.

It supports multiple communication protocols including HART® and FOUNDATION(TM) Fieldbus™.

Type designation: TREX2-abcde

where:

a = Communication Module: (specifies the installed devices according to IEC/EN 60079-11):

C= TREX 2 Device Communication

L= TREX 2 Device Communication Plus

D= Reserved for the complete TREX2 device assembly

For further details, see the marking on the communication module label

0=None

b = Power Module Type: (specifies the installed devices according to IEC/EN 60079-11):

P=Rechargeable Li-Ion Power Module Rev.04

0=None

c = Product Certification:

KL= ATEX, cCSA and CSAus, IECEx Intrinsically Safe (includes FISCO as applicable)

NA= None (Used for individual modules that are not Ex-certified as a stand-alone device, as well as for use of the complete TREX2 device in non-hazardous areas)

d = Radio options:

W= Wifi and or Bluetooth for TREX2

9= None for TREX2

M= Reserved for the complete TREX2 device assembly

For further details, see the marking on the Display and CPU module label

e= Options

* =any alphanumeric or symbolic characters

(not relevant for hazardous area certification)

The device consists of 3 main modules built in or may be attached by the customer or a service center:

1- Display and CPU module

A module that mainly contains the display, the motherboard with IS circuits and CPU and the PCBs for the front-panel keypads, plus an optional WLAN/Bluetooth module.

2- Communication module

A communication and measurement module containing various PCBs in different options

3- Power module

A power supply module containing the batteries and the PCBs controlling charging and discharging.

Depending on the options, the device TREX2 can be fitted with connectors for HART, mA and or FOUNDATION fieldbus.

Two connectors protected by rubber covers are intended for use outside the hazardous area only:

- Micro USB interface for downloading updates from a PC: 7.13 V, 85 mA.

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- AC adaptor for charging the power module and operating in parallel: 12-17 Vdc, 4A

Electrical data

Trex Device Communicator communication module
For the version TREX2-abcde (with "a"="C" and "c"="KL")

Table 1				
	Foundation Fieldbus™ (non-FISCO)	Foundation Fieldbus™ (FISCO)	HART®	
	FF + and -	FF + and -	HART + and -	
Ui	30 Vdc	30 Vdc	30 Vdc	
Ii	380 mA	215 mA (IIC) 380 mA (IIB)	200 mA	
Pi	1.3 W	1.9 W (IIC) 5.3 W (IIB)	1.0 W	
Ci	0	0	0	
Li	0	0	0	
Uo	1.89 V	1.89 V	1.89 V	
Io	1,91 µA	1,91 µA	19,1 µA	
Po	3,61 µW	3,61 µW	36,1 µW	
Co	14.3 µF	14.3 µF	14.3 µF	
Lo	100 mH	100 mH	100 mH	

Trex Device Communicator Plus communication module
For the version TREX2-abcde (with "a"="L" and "c"="KL")

Table 2							
	mA- Interface	Foundation Fieldbus™ (non-FISCO)		HART®		Foundation Fieldbus™ (FISCO)	
	mA	FF pwr and F-	FF + and -	HART + pwr	HART + and -	FF pwr and F-	FF + and -
Ui	30 Vdc	17.5 V	30 Vdc	30 Vdc	30 Vdc	17.5 V	30 Vdc
Ii	200 mA	380 mA	380 mA	200 mA	200 mA	380 mA	215 mA (IIC) 380 mA (IIB)

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Table 2							
	mA-Interface	Foundation Fieldbus™ (non-FISCO)		HART®		Foundation Fieldbus™ (FISCO)	
	mA	FF pwr and F-	FF + and -	HART + pwr	HART + and -	FF pwr and F-	FF + and -
Pi	1.0 W	1.3 W	1.3 W	1.0 W	1.0 W	1.3 W	1.9 W (IIC) 5.3 W (IIB)
Ci	0	20,5 nF	0	0	0	20,5 nF	0
Li	0	0	0	0	0	0	0
Uo	0.09V	17.44V	1.89 V	28,35V	1.89 V	17.44V	1.89 V
Io	14.63mA	153mA	1.91 µA	68.1mA	19.1 µA	153 mA	1.91 µA
Po	1.28mW	1.73 W	3.61 mW	776mW	36.1 µW	1.73 W	3.61 µW
Co	-	see table 3	14.3 µF	see table 4	14.3 µF	see table 3	14.3 µF
Lo	-	see table 3	100 mH	see table 4	100 mH	see table 3	100 mH

Table 3: Co and Lo values for FF pwr and F-			
Co [nF]*	249.5	318.5	318.5
Lo [µH]	100	50	30

Table 4: Co and Lo values for HART + pwr				
Co [nF]	56	62	71	79
Lo [µH]	1000	750	500	100

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	07 July 25	R80222869A	The release of the prime certificate.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 None.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

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The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

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Certificate Annexe



Certificate Number: CSANe 25ATEX1027
Equipment: TREX2 Device Communicator
Applicant: R. STAHL HMI Systems GmbH

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
20244170120	1 to 66	01	24 June 2025	TREX2 Certification Document TREX 2
20244170020	1 to 1	00	17 June 25	TREX 2 Block diagram
20153870022	1 to 1	03	17 June 25	Island System Block diagram ORTHRUS
20244170030	1 to 1	00	17 June 25	TREX 2 Block diagram I.S. Power Concept
20150470121	1 to 1	01	17 June 25	Block diagram, BB-1_disp ORTHRUS
20150470112	1 to 1	02	17 June 25	Block diagram, BB-1_PS ORTHRUS
20244170040	1 to 1	00	17 June 25	Block diagram, WLESS-1 ORTHRUS
20150470223	1 to 4	03	17 June 25	Block diagram, CDB-2 ORTHRUS
20153870012	1 to 1	02	17 June 25	Block diagram CDB System with PCB ORTHRUS
20244170110	1 to 4	01	24 June 2025	TREX2 calculated entity parameters
14530001	1 to 1	00	17 June 25	CER_ORTHRUS overview 01
14530002	1 to 1	00	17 June 25	CER_ORTHRUS Components Details
14530004	1 to 14	01	3 July 25	TREX2 Device communicator Control drawing Safety instruction
14530005	1 to 1	00	17 June 25	Conformal coating examples for TREX2
14530006	1 to 1	00	24 June 25	Encapsulation material for TREX2
CDB-02 PCB				
2021 07 02 6 B	1 to 11	-	17 June 25	CDB-2 Component list
2021 07 02 6 F1-Ex	1 to 2	-	17 June 25	CDB-2 Lackering diagram
2021 07 02 6 F2	1 to 1	-	17 June 25	CDB-2 Potting diagram
2021 07 02 6 LC	1 to 7	-	17 June 25	CDB-2 Track layout
2021 07 02 6 P	1 to 2	-	17 June 25	CDB-2 Component Placement
2021 07 02 6 S	1 to 5	-	17 June 25	CDB-2 Schematic
20244170080	1 to 5	01	17 June 25	TREX2 Orthrus calculation CDB-2
20251270050	1 to 20	00	17 June 25	TREX2 Device communicator project. CDB-2 Layout check examples
20244170080	1 to 5	01	17 June 25	TREX2 Orthrus calculation CDB-2
WIRELESS-01 PCB				
2021 07 03 5 B	1 to 2	-	17 June 25	WLESS-1 Component list
2021 07 03 5 F2-Ex	1 to 1	-	17 June 25	WLESS-1 Potting diagram
2021 07 03 5 LC	1 to 5	-	17 June 25	WLESS-1 Track layout
2021 07 03 5 P	1 to	-	17 June 25	WLESS-1 Component Placement
2021 07 03 5 S	1 to 1	-	17 June 25	WLESS-1 Schematic
20244170060	1 to 5	00	17 June 25	TREX2 Orthrus calculation WLESS-1
2021 07 03 5 F1-EX	1 to 1	-	17 June 25	WLESS-1 Lackering diagram
20251270060	1 to 9	00	17 June 25	TREX2 WLESS-1 Layout check examples
20244170060	1 to 6	01	17 June 25	TREX2 Orthrus calculation W-LESS-1
BASEBOARD BB-1 PCB				
2012 06 01 3 B	1 to 15	-	17 June 25	BB-1 Component list
2012 06 01 3 F1-EX	1 to 2	-	17 June 25	BB-1 Lackering diagram

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Applicant: R. STAHL HMI Systems GmbH

Drawing	Sheets	Rev.	Date (Stamp)	Title
2012 06 01 3 F2-EX	1 to 2	-	17 June 25	BB-1 Potting diagram
2012 06 01 3 LC	1 to 7	-	17 June 25	BB-1 Track layout
2012 06 01 3 P	1 to 2	-	17 June 25	BB-1 Component Placement
2012 06 01 3 S	1 to 21	-	17 June 25	BB-1 Schematic
20244170070	1 to 8	00	17 June 2025	TREX2 Orthrus calculation BB-1
CPU-MX8M-1 (PCB VARIANT-3)				
2020 03 01 2 B	1 to 2	-	17 June 25	CPU-MX8M-1 Component list
2020 03 01 2 LC	1 to 5	-	17 June 25	CPU-MX8M-1 Track layout
2020 03 01 2 P	1 to 2	-	17 June 25	CPU-MX8M-1 Component Placement
2020 03 01 2 S	1 to 1	-	17 June 25	CPU-MX8M-1 Schematic
CPU-MX8M-1 (PCB VARIANT-4)				
2020 03 01 4 B	1 to 2	-	17 June 25	CPU-MX8M-1 Component List
2020 03 01 4 LC	1 to 5	-	17 June 2025	CPU-MX8M-1 Track layout
2020 03 01 4 P	1 to 2	-	17 June 2025	CPU-MX8M-1 Component Placement
2020 03 01 4 S	1 to 1	-	17 June 2025	CPU-MX8M-1 Schematic
1450100	1 to 1	-	17 June 2025	CPU Potting overview
CDB-01 PCB				
2021 07 01 6 B	1 to 14	-	17 June 25	CDB-1 Component list
2021 07 01 6 F1-EX	1 to 2	-	17 June 25	CDB-1 Lackering diagram
2021 07 01 6 F2-EX	1 to 1	-	17 June 25	CDB-1 Potting diagram
2021 07 01 6 LC	1 to 7	-	17 June 25	CDB-1 Track layout
2021 07 01 6 P	1 to 2	-	17 June 25	CDB-1 Component Placement
2021 07 01 6 S	1 to 7	-	17 June 25	CDB-1 Schematic
20244170090	1 to 4	00	17 June 25	TREX2 Orthrus calculation CDB-1
20251270060	1 to 21	00	17 June 25	TREX2 Device communicator project. CDB-1 Layout check examples
20244170090	1 to 4	00	17 June 2025	TREX2 Orthrus calculation CDB-1
DISP-1 PCB				
2011 32 01 5 B	1 to 1	-	17 June 25	DISP-1 Component list
2011 32 01 5 LC	1 to 5	-	17 June 25	DISP-1 Track layout
2011 32 01 5 P	1 to 2	-	17 June 25	DISP-1 Component Placement
2011 32 01 5 S	1 to 2	-	17 June 25	DISP-1 Schematic
SB-1 PCB (*)				
2011 31 03 4B	1 to 6	-	12 April 24	SB-1 Component list
2011 31 03 4 LC	1 to 7	-	11 May 16	SB-1 Track layout
2011 31 03 4 P	1 to 2	-	10 June 16	SB-1 Component Placement
2011 31 03 4 S	1 to 2	-	4 March 24	SB-1 Schematic
2011 31 03 4 F2	1 to 2	-	18 April 16	SB-1 Potting diagram
SB-2 PCB (*)				
2013 48 01 4 B	1 to 1	-	10 June 16	SB-2 Component List
2013 48 01 4 LC	1 to 7	-	10 June 16	SB-2 Track layout
2013 48 01 4 P	1 to 2	-	10 June 16	SB-2 Component Placement
2013 48 01 4 S	1 to 1	-	10 June 16	SB-2 Schematic

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Equipment: TREX2 Device Communicator
Applicant: R. STAHL HMI Systems GmbH

Drawing	Sheets	Rev.	Date (Stamp)	Title
2013 48 01 4 F2	1 to 2	-	10 June 16	SB-2 Potting diagram
SB-3 PCB (*)				
2013 48 02 B	1 to 1	-	11 May 16	SB-2 Component List
2013 48 02 3 LC	1 to 3	-	11 May 16	SB-2 Track Layout
2013 48 02 3 P	1 to 1	-	11 May 16	SB-2 Component Placement
2013 48 02 3 S	1 to 1	-	11 May 16	SB-2 Schematic
2013 48 02 3 F2	1 to 1	-	11 May 16	SB-2 Potting diagram
(*) = Previously certified PCBs				

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