



1 EU-TYPE EXAMINATION CERTIFICATE

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

3 Certificate Number: **Sira 16ATEX2171** Issue: **7**

4 Equipment: **Trex 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 60079-0:2012/A11:2013

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

Ta = -20°C ≤ Ta ≤ +50°C



Signed: M Halliwell

Title: Director of Operations

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13. DESCRIPTION OF EQUIPMENT

The Trex 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.

The equipment is powered by four lithium-ion cells (ICR18650K) in a 2-series x 2 parallel combination, with a peak voltage of 8.4 V.

Type designation: TREX – a b c d e f g

where:

- a = Communication Module:** (specifies the installed devices according to IEC 60079-11):
 - C Device Communicator
 - L Device Communicator Plus
 - E Blank
- b = Applications:** (specifies software items and does not affect intrinsic safety)
 - H HART
 - F HART + FOUNDATION Fieldbus
- c = Power Module Type:** (specifies the installed devices according to IEC 60079-11)
 - P Rechargeable Li-Ion Power Module
- d = Product Certification:**
 - KL ATEX, CSA, CSA us, IECEx Intrinsically Safe (includes FISCO as applicable)
 - KB CSA and CSA us, Intrinsically Safe
- e = Radio Options:**
 - W WiFi / Bluetooth
 - 9 None
- f = Support:**
 - Sn Standard Support (not relevant for hazardous area certification)
 - Pn Premium Support (not relevant for hazardous area certification)
- g = Options:**
 - These options do not affect intrinsic safety

The Trex Device Communicator consists of the following basic modules:

- a) Baseboard main unit with CPU and I.S. power supply circuits;
- b) Front panel with keypad, LED backlighted touch-display;
- c) Replaceable power module.

The following modules are optionally built in or may be attached by the customer or a service center:

- d) Wireless Board
- e) Trex Device Communicator communication module.
- f) Trex Device Communicator Plus communication module

Apart from the HART, mA and FOUNDATION Fieldbus, two connectors (protected by rubber covers) are for use outside the hazardous area:

- Micro USB interface for downloading updates from a PC: 7.13 V, 85 mA.
- AC adaptor for charging the power module and operating in parallel: 12-17 Vdc, 4A



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There are three versions:

- Trex Device Communicator blank module, with no electronics or external connections;
- Trex Device Communicator communication module, with four external connections;
- Trex Device Communicator Plus communication module, with nine external connections.

The **Trex Device Communicator communication module** has the following entity parameters:

Table 1			
	FOUNDATION ^(TM) fieldbus (non-FISCO)	FOUNDATION ^(TM) 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	32 µA	32 µA	32 µA
Po	61 µW	61 µW	61 µW
Co	14.3 µF	14.3 µF	14.3 µF
Lo	100 mH	100 mH	100 mH

The **Trex Device Communicator Plus communication module** has the following entity parameters:

Table 2							
	mA- Interface mA	Foundation (TM)Fieldbus (non-FISCO)		HART®		Foundation (TM)Fieldbus (FISCO)	
		FF pwr and F-	FF + and -	HART + pwr	HART + and -	FF pwr and F-	FF + and -
Ui	30 Vdc	17.5 Vdc	30 Vdc	30 Vdc	30 Vdc	17.5 Vdc	30 Vdc
Ii	200mA	380 mA	380 mA	200 mA	200 mA	380 mA	215 mA (IIC) 380 mA (IIB)
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	231 nF	0	0	0	231 nF	0
Li	0	0	0	0	0	0	0
Uo	0	17.31V	1.89 V	25.69 V	1.89 V	17.31V	1.89 V
Io	0	199 mA	32 µA	105 mA	1.9 mA	199 mA	32 µA
Po	0	0.94 W	61 µW	668 mW	3.6 mW	0.94 W	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

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Table 3: Co and Lo values for FF pwr and F-

Co [nF]	19	69	115
Lo [μH]	100	50	30

Table 4: Co and Lo values for HART + pwr

Co [nF]	57	64	75	102
Lo [μH]	1000	750	500	100

Variation 1 - This variation introduced the following changes:

- Removal of the marking "Warning - potential electrostatic charging hazards see instruction".
- Change of details of the application of coating on PCB.
- Change of diode type for D08, D10, D11 and D12 on the SB1.
- Editorial changes at the test documents of the CDB1-, CDB2-, CPU- and WLESS-1-board.

Variation 2 - This variation introduced the following changes:

- Changes of components on the CDB-1:
 - IC 8, IC13, IC28 and IC32 were changed to type MCP6V12-E/MS
- Changes of components on the CDB-2:
 - IC 19, IC 22, IC 24 and IC21 were changed to limited components. EX-markings for this components added in the documentation.
 - The values of R362, R363, R364 and R365 were changed and these component are not any longer limited components. EX-markings are deleted in the documentation.
 - IC18 was changed to type MCP6V12-E/MS.
 - Change of the type designation b (HART + FOUNDATION Fieldbus) from an L to an F, the description was amended accordingly.

Variation 3 - This variation introduced the following changes:

- Update to printed circuit board track layout (CDB-1) to add two additional tracks as covered by drawing number 2013 10 01 5 LC.
- associated drawings are 2013 10 01 5 B, 2013 10 01 5 F1, 2013 10 01 5 F2, 2013 10 01 5 P, 2013 10 01 5 S)

Variation 4 - This variation introduced the following changes:

- Change of value of R351 on BB-1. Delete of EX-marking of R351 on BB-1.
- Minor changes of lacquering area on the baseboard.
- Change of CPU-1 BOM/Schematic/Layout.
- Changes of components on CDB-1 and CDB-2
- Change of the Layout of DISP-1
- Change of the Labels

Variation 5 - This variation introduced the following change:

- Addition of additional charger i.e. Powersolve Model # PA65PD-1504000.



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Variation 6 - This variation introduced the following change:

- i. The following additional manufacturing locations were introduced:
 - S.C. EMERSON S.R.L. iCenter, Unit M4 Str Emerson nr.4 Cluj-Napoca Romania.
 - Computational Systems Inc (CSI) Emerson Process Management LLLP 835 Innovation Dr Knoxville Tennessee 37932 United States of America.
- ii. The addition of a non-IS safety resistor (R28) on CDB-2 PCB, making this alternative to the original CDB-2 PCB. Drawings were updated to recognise this change.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	20 June 2016	R70017224A	The release of the prime certificate.
1	05 October 2016	R70093745A	The introduction of Variation 1.
2	28 February 2017	R70108147A	The introduction of Variation 2.
3	05 December 2017	R70161136A	The introduction of Variation 3.
4	15 October 2019	0664	Transfer of certificate Sira 16ATEX2171 from Sira Certification Service to CSA Group Netherlands B.V.
5	06 November 2019	R70188467A	The introduction of Variation 4.
6	27 October 2021	R80086613A	The introduction of Variation 5.
7	28 June 2022	R80116971A	The introduction of Variation 6.

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

None

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

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.

17.3 The manufacturer shall confirm by a routine test on 100% of samples that the output voltage and current of the CDB-1 (FDC) and BB crowbars are within the maximum value permitted.

17.4 The AC Adapter (charger) supplied with the equipment shall comply with the:

- IEC 60950 series, IEC 61010-1 or a technically equivalent standard or
- safety extra low voltage (SELV)

The maximum output voltage shall not exceed 17 Vdc. The following type only has been approved for use with the Trex Device Communicator:

- Type PSDx-y0-XX manufactured by Powersolve Electronics Ltd.
- Type PA65PD-1504000 by Powersolve Electronics Ltd.

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- 17.5 Fuses that are energised in the hazardous area and are under encapsulation shall be treated (e.g. with silicone sealant) before encapsulation to prevent ingress of casting compound into the body of the fuse.

Certificate Annexe



Certificate Number: Sira 16ATEX2171
Equipment: Trex Device Communicator
Applicant: R. STAHL HMI Systems GmbH

Issue 0

Drawing number	Sheets	Rev.	Date (Sira stamp)	Description
1450000	1 of 1	02	11 May 16	General assembly
2014 44 52 2	1 of 1	2	10 Jun 16	Marking, FF port
2016 19 50 0	1 to 15	-	13 Jun 16	Control Drawing
2016 20 51 0	1 to 3	-	13 Jun 16	Marking, IECEx/ATEX
2014 22 02 0 B	1 of 1	-	11 May 16	Component list
2014 22 02 0 LC	1 to 2	-	11 May 16	Track layout
2014 22 02 0 P	1 of 1	-	11 May 16	Component placement
2014 22 02 0	1 of 1	-	11 May 16	Schematic
2012 06 01 3 B	1 to 15	-	10 Jun 16	Component list
2012 06 01 3 F1	1 to 2	-	11 May 16	Lacquering diagram
2012 06 01 3 F2	1 of 2	-	11 May 16	Potting diagram
2012 06 01 3 LC	1 to 7	-	11 May 16	Track layout
2012 06 01 3 P	1 to 2	-	10 Jun 16	Component placement
2012 06 01 3	1 to 21	-	10 Jun 16	Schematic
2013 10 01 4 B	1 to 14	-	26 May 16	Component List
2013 10 01 4 F1	1 of 2	-	10 Jun 16	Lacquering diagram
2013 10 01 4 F2	1 of 1	-	10 Jun 16	Potting diagram
2013 10 01 4 LC	1 to 7	-	10 Jun 16	Track layout
2013 10 01 4 P	1 to 2	-	10 Jun 16	Component placement
2013 10 01 4 S	1 to 7	-	26 May 16	Schematic
2013 10 02 4 B	1 to 9	-	10 Jun 16	Component List
2013 10 02 4 F1	1 to 2	-	11 May 16	Lacquering diagram
2013 10 02 4 F2	1 to 2	-	11 May 16	Potting diagram
2013 10 02 4 LC	1 to 5	-	26 May 16	Track layout
2013 10 02 4 P	1 to 2	-	10 Jun 16	Component placement
2013 10 02 4 S	1 to 3	-	26 May 16	Schematic
2012 10 01 1 LC	1 to 8	-	11 May 16	Track layout
2012 10 01 3 B	1 to 2	-	11 May 16	Component List
2012 10 01 3	1 to 8	2	11 May 16	Schematic
2012 10 02 3 F3	1 of 1	-	11 May 16	Potting diagram
2012 10 02 3 P	1 to 2	-	11 May 16	Component placement
2011 32 01 3 B	1 of 1	-	11 May 16	Component List
2011 32 01 3 F2	1 to 2	-	11 May 16	Lacquering diagram
2011 32 01 3 LC	1 to 5	-	11 May 16	Track layout
2011 32 01 3 P	1 to 2	-	10 Jun 16	Component placement
2011 32 01 3	1 to 2	-	11 May 16	Schematic
2013 07 01 2 B	1 of 1	-	11 May 16	Component List
2013 07 01 2 LC	1 to 3	-	11 May 16	Track layout
2013 07 01 2 P	1 to 2	-	11 May 16	Component placement
2013 07 01 2 S	1 of 1	-	11 May 16	Schematic
2011 31 03 4 B	1 to 6	-	11 May 16	Component List
2011 31 03 4 F2	1 to 2	-	11 May 16	Potting diagram
2011 31 03 4 LC	1 to 7	-	11 May 16	Track layout
2011 31 03 4 P	1 to 2	-	10 Jun 16	Component placement
2011 31 03 4 S	1 to 4	-	11 May 16	Schematic
2013 48 01 4 B	1 to 1	-	10 Jun 16	Component List
2013 48 01 4 F2	1 to 2	-	10 Jun 16	Potting diagram

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Drawing number	Sheets	Rev.	Date (Sira stamp)	Description
2013 48 01 4 LC	1 to 5	-	10 Jun 16	Track layout
2013 48 01 4 P	1 to 2	-	10 Jun 16	Component placement
2013 48 01 4 S	1 of 1	-	10 Jun 16	Schematic
2013 48 02 3 B	1 of 1	-	11 May 16	Component List
2013 48 02 3 F2	1 of 1	-	11 May 16	Potting diagram
2013 48 02 3 LC	1 of 3	-	11 May 16	Track layout
2013 48 02 3 P	1 of 1	-	11 May 16	Component placement
2013 48 02 3 S	1 of 1	-	11 May 16	Schematic
2012 29 01 3 B	1 of 3	-	11 May 16	Component List
2012 29 01 3 F2	1 of 1	-	11 May 16	Potting diagram
2012 29 01 3	1 to 5	-	10 Jun 16	Track layout
2012 29 01 3 P	1 to 2	-	10 Jun 16	Component placement
2012 29 01 3 S	1 to 3	-	11 May 16	Schematic

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
2012 10 02 3 F3	1 of 1	-	05 Sep 16	1450011 Rev03 BB1
2013 10 01 4 F1	1 to 2	-	05 Sep 16	DRAGON-CDB-1
2013 10 02 4 F2	1 to 2	-	05 Sep 16	DRAGON-CDB-2
2011 32 01 3 F1	1 to 2	-	05 Sep 16	DRAGON-DISP-1
2011 31 03 4 S	1 to 4	-	05 Sep 16	DRAGON-SB-1
2011 31 03 4 B	1 to 6	-	05 Sep 16	DRAGON-SB-1
2012 29 01 3 B	1 to 4	3.11	05 Sep 16	DRAGON-WLESS-1
2012 29 01 3 S	1 to 3	-	05 Sep 16	DRAGON-WLESS-1
2016 20 51 1	1 to 3	-	05 Sep 16	Label Drawing only ATEX / IECEx

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
2013 10 01 4 S	1 to 7	-	20 Jan 17	DRAGON-CDB-1
2013 10 01 4 B	1 to 14	-	20 Jan 17	DRAGON-CDB-1
2013 10 02 4 S	1 to 3	-	20 Jan 17	DRAGON-CDB-2
2013 10 024 B	1 to 9	-	20 Jan 17	DRAGON-CDB-2

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
2013 10 01 5 B	1 to 14	5.10	19 Oct 17	DRAGON-CDB-1
2013 10 01 5 F1	1 of 2	-	19 Oct 17	DRAGON-CDB-1
2013 10 01 5 F2	1 of 1	-	19 Oct 17	DRAGON-CDB-1
2013 10 01 5 LC	1 to 7	-	19 Oct 17	DRAGON-CDB-1
2013 10 01 5 P	1 to 2	-	19 Oct 17	DRAGON-CDB-1
2013 10 01 5 S	1 to 7	-	19 Oct 17	DRAGON-CDB-1

Issue 4 - No new drawings were introduced.

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Certificate Annexe



Certificate Number: Sira 16ATEX2171
Equipment: Trex Device Communicator
Applicant: R. STAHL HMI Systems GmbH

Issue 5

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
2012 06 01 3 F1	1 to 2	-	03 Sep 19	DRAGON-BB-1
2012 06 01 3 B	1 to 15	-	03 Sep 19	DRAGON-BB-1
2012 06 01 3 S	1 to 21		03 Sep 19	DRAGON-BB-1,CPU Board interconnection
1450100	1 of 1	01	03 Sep 19	CPU-Board Certification
1450011	1 of 1	03	03 Sep 19	BB1 CPU Distance Potting
2019 33 50 0	1 of 1	-	03 Sep 19	DRAGON-CPU-1, L and C
2013 10 01 5 B	1 to 14	-	03 Sep 19	DRAGON-CDB-1
2013 10 01 5 F1	1 of 2	-	03 Sep 19	DRAGON-CDB-1
2013 10 01 5 F2	1 of 1	-	03 Sep 19	DRAGON-CDB-1
2013 10 01 5 LC	1 to 7	-	03 Sep 19	DRAGON-CDB-1
2013 10 01 5 P	1 to 2	-	03 Sep 19	DRAGON-CDB-1
2013 10 01 5 S	1 to 7	-	03 Sep 19	DRAGON-CDB-1
2013 10 02 4 B	1 to 10	-	03 Sep 19	DRAGON-CDB-2
2013 10 02 4 F1	1 of 2	-	03 Sep 19	DRAGON-CDB-2
2013 10 02 4 F2	1 of 2	-	03 Sep 19	DRAGON-CDB-2
2013 10 02 4 LC	1 to 5	-	03 Sep 19	DRAGON-CDB-2
2013 10 02 4 P	1 to 2	-	03 Sep 19	DRAGON-CDB-2
2013 10 02 4 S	1 to 3	-	03 Sep 19	DRAGON-CDB-2
2011 32 01 4 B	1 of 1	-	03 Sep 19	DRAGON-DISP-1
2011 32 01 4 F1	1 to 2	-	03 Sep 19	DRAGON-DISP-1
2011 32 01 4 LBW	1 to 5	-	03 Sep 19	DRAGON-DISP-1
2011 32 01 4 P	1 to 2	-	03 Sep 19	DRAGON-DISP-1
2011 32 01 4 S	1 to 2	-	03 Sep 19	DRAGON-DISP-1
2016 20 51 2	1 to 3	2	03 Sep 19	Label Drawing, only ATEX / IECEx

Issue 6 - No new drawings were introduced.

Issue 7

Drawing	Sheets	Rev.	Date (Stamp)	Title
2013 10 02 5 S	1 to 3	-	19 Apr 22	Alt. DRAGON-CDB-2
2013 10 02 5 F1	1 to 2	-	19 Apr 22	Alt. DRAGON-CDB-2 (lacquered diagram)
2013 10 02 5 F2	1 to 2	-	19 Apr 22	Alt. DRAGON-CDB-2 (potting diagram)
2013 10 02 5 LC	1 to 5	-	19 Apr 22	Alt. DRAGON-CDB-2 (Layer colored)
2013 10 02 5 B	1 to 10	-	19 Apr 22	Alt. DRAGON-CDB-2 (partlist)
2013 10 02 5 P	1 to 2	-	19 Apr 22	Alt. DRAGON-CDB-2 (Assembly)

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