



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx SIR 16.0057**

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Certificate history:

Status: **Current**

Issue No: 6

[Issue 5 \(2021-10-27\)](#)

[Issue 4 \(2019-11-06\)](#)

[Issue 3 \(2017-12-05\)](#)

[Issue 2 \(2017-02-28\)](#)

[Issue 1 \(2016-10-05\)](#)

[Issue 0 \(2016-06-20\)](#)

Date of Issue: **2022-06-28**

Applicant: **R. STAHL HMI Systems GmbH**
Adolf-Grimme-Allee 8
50829 Köln
Germany

Equipment: **Trex Device Communicator**

Optional accessory:

Type of Protection: **Intrinsically Safe**

Marking: **Ex ia [ia Ga] [ia Da IIIC] IIC T4 Gb**
Ta = -20°C ≤ Ta ≤ +50°C

Approved for issue on behalf of the IECEx
Certification Body:

Michelle Halliwell

Position:

Director Operations, UK & Industrial Europe

Signature:
(for printed version)

Date:
(for printed version)

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 www.iecex.com or use of this QR Code.



Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom





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Manufacturer: **R. STAHL HMI Systems GmbH**
Adolf-Grimme-Allee 8
50829 Köln
Germany

Manufacturing locations: **R. STAHL HMI Systems GmbH**
Adolf-Grimme-Allee 8
50829 Köln
Germany

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
USA
United States of America

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 equipment 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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with 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 Reports:

GB/CSAE/ExTR21.0131/00
GB/SIR/ExTR17.0022/00
GB/SIR/ExTR22.0059/00

GB/SIR/ExTR16.0122/00
GB/SIR/ExTR17.0250/00

GB/SIR/ExTR16.0254/00
GB/SIR/ExTR19.0272/00

Quality Assessment Reports:

DE/BVS/QAR06.0007/13

GB/SIR/QAR17.0002/04

GB/SIR/QAR20.0007/01



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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 FOUNDATIONTM 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. Refer to the Annexe for Type Designations and Entity Parameters

SPECIFIC CONDITIONS OF USE: NO



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, Issue 6, recognises the following change; refer to the certificate annex to view a comprehensive history:

1. 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.
2. 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.

Annex:

[IECEx SIR 16.0057 Iss 6 Annexe.pdf](#)

Annexe to: IECEx SIR 16.0057 Issue 6
Applicant: R. STAHL HMI Systems GmbH
Apparatus: Trex Device Communicator



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™ 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

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	FOUNDATION(TM) fieldbus (non-FISCO)		HART®		FOUNDATION(TM) fieldbus (FISCO)	
	mA	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

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

Conditions of Manufacture

- i. 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.
- ii. 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.
- iii. 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.

Full certificate change history

Issue 1 – this Issue introduced the following changes:

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

Issue 2 – this Issue introduced the following changes:

1. Changes of components on the CDB-1:
 - IC 8, IC13, IC28 and IC32 were changed to type MCP6V12-E/MS
2. Changes of components on the CDB-2:
 - IC 19, IC 22, IC 24 and IC21 were changed to limited components. EX-markings for the components added in the documentation.
 - The values of R362, R363, R364 and R365 were changed and these components 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.

Issue 3 – this Issue introduced the following changes:

1. Update to printed circuit board track layout (CDB-1) to add two additional tracks as covered by drawing number 2013 10 01 5 LC.
2. Update to the revision numbers of drawings associated with drawing 2013 10 01 5 LC. (The 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).

Issue 4 – this Issue introduced the following changes:

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

Annexe to: IECEx SIR 16.0057 Issue 6
Applicant: R. STAHL HMI Systems GmbH
Apparatus: Trex Device Communicator



Issue 5 – this Issue introduced the following change:

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

Issue 6 – this Issue introduced the following change:

1. 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.
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