



Trex Device Communicator

Control Drawing

Trex Device Communicator communication module:
 -HART
 -FOUNDATION fieldbus (FISCO and non-FISCO)

Trex Device Communicator Plus communication module:
 -HART
 -mAMeter
 -FOUNDATION fieldbus (FISCO and non-FISCO)

 ATEX / IECEx: II 2G (1GD) Ex ia [ia Ga] [ia Da IIIC] IIC T4 Gb
 cCSAus: Class I, Division 1, Groups A, B, C and D, T4
 Class I, Zone 1, AEx ia [ia Ga] [ia Da IIIC] IIC T4 Gb
 CSA: Ex ia [ia Ga] [ia Da IIIC] IIC T4 Gb

WARNINGS:

WARNING - DO NOT USE THE USB CONNECTOR IN HAZARDOUS LOCATIONS
 AVERTISSEMENT - NE JAMAIS UTILISIER LE CONNECTEUR USB DANS DES ZONES À RISQUE D'EXPLOSION

WARNING - INSTALL, CHARGE, OR REMOVE THE POWER MODULE ONLY IN A NONHAZARDOUS LOCATIONS
 AVERTISSEMENT - L'INSTALLATION, LE CHARGEMENT AINSI QUE L'ENLÈVEMENT DU MODULE D'ALIMENTATION EST POSSIBLE
 UNIQUEMENT EN DEHORS DES ZONES À RISQUE D'EXPLOSION

WARNING - ADDITION OR SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
 AVERTISSEMENT - L'AJOUT OU LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE

WARNING - BEFORE CONNECTING FFpwr; DISCONNECT ALL FURTHER POWER SUPPLIES AND TERMINATORS
 AVERTISSEMENT - AVANT DE CONNECTER Ffpwr, DÉCONNECTER D'ABORD TOUTES LES ALIMENTATIONS ET LES DISPOSITIFS DE TERMINAISON

WARNING - CONNECT THE TREX DEVICE COMMUNICATOR ACCORDING TO THE SCHEMES IN THIS CONTROL DRAWING
 AVERTISSEMENT - RACCORDER CET APPAREIL TREX DEVICE COMMUNICATOR SELON LE PLAN FOURNI

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
 Adolf-Grimme-Allee 8
 D- 50829 Köln (Cologne), Germany
 TEL: +49 (0)221-76806-1000
 FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

WARNINGS

Keine Änderung ohne Prüfung durch Prüfstelle
 (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval
 (e.g. UL, FM, CSA)!

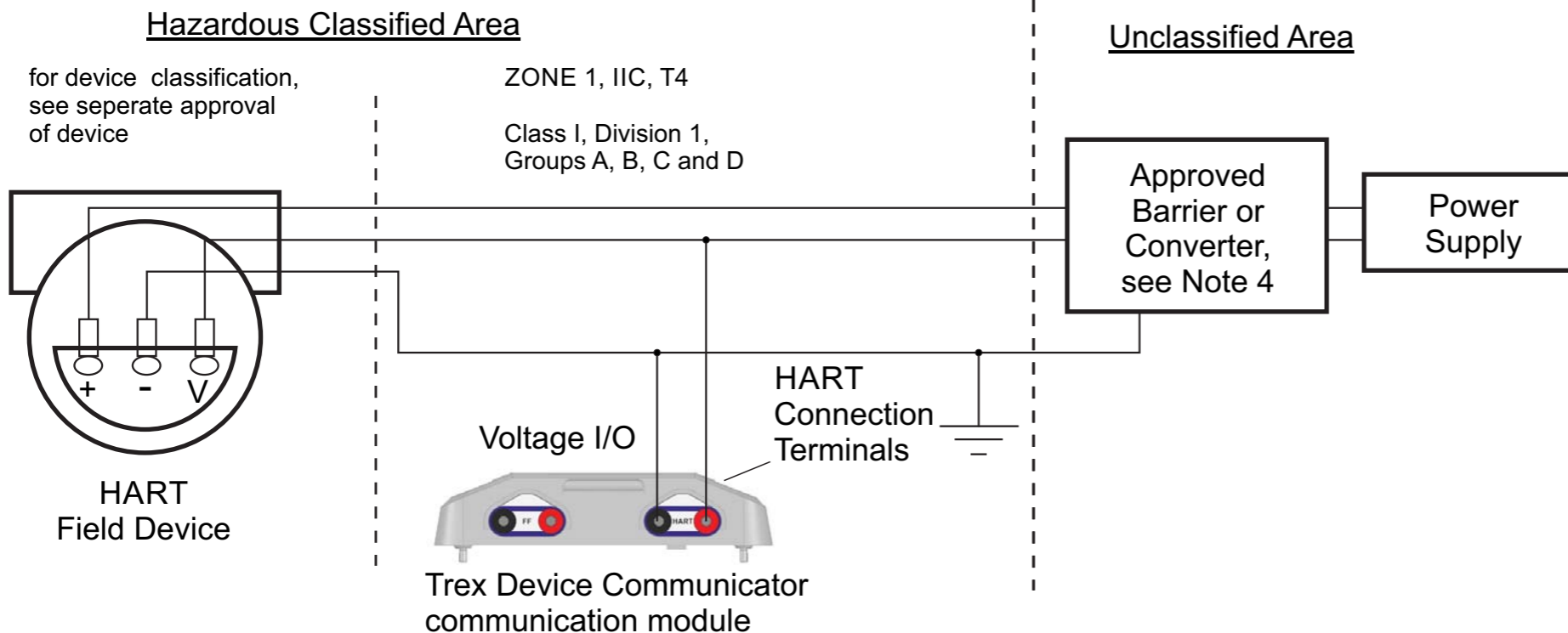
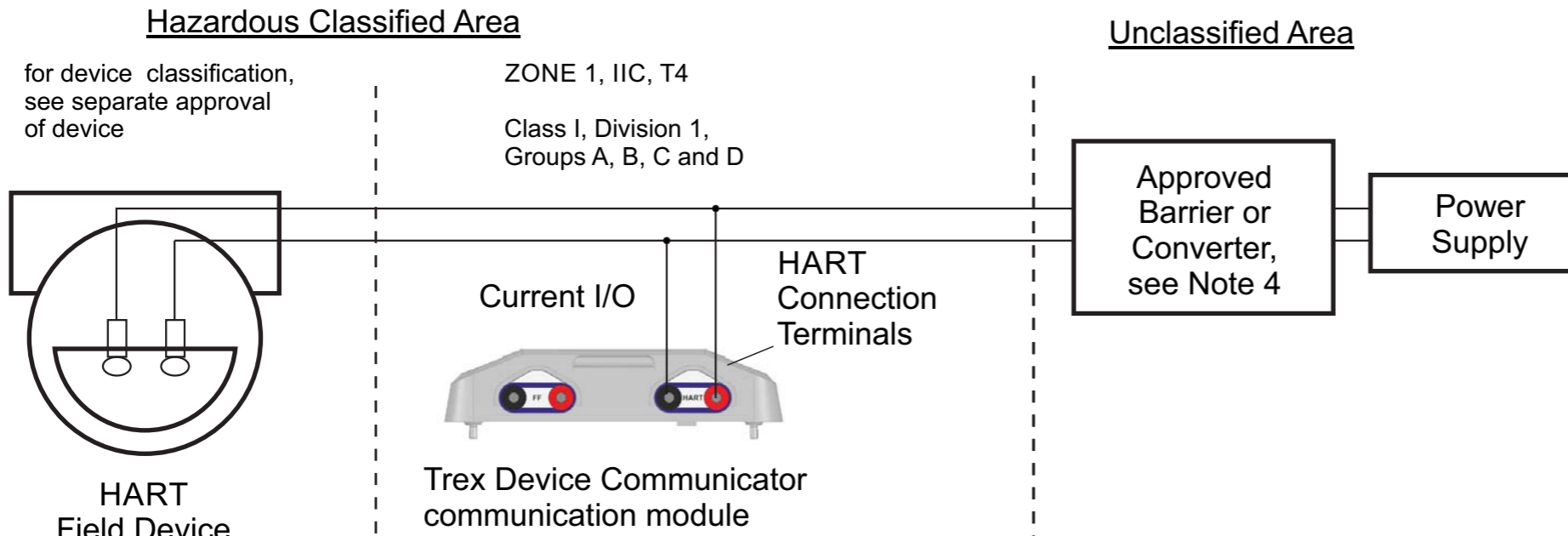
Trex Device Communicator IS Installation Drawing			Page	1
	Date	Name	Drawing-Number	
issued	10.06.2016	Wn	2016 19 50 0	15
checked	10.06.2016	Due		Pages

TABLE 1 - CSA ENTITY PARAMETERS for HART with Trex Device Communicator communication module

Input Parameter	
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be <= 30 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be <= 200 mA
P _i (P _{max}) = 1 W	
C _i = 0 uF	Device does not add capacitance to the loop
L _i = 0 mH	Device does not add inductance to the loop

Output Parameter	
U _o (V _{oc}) = 1.89 Vdc	
I _o (I _{sc}) = 32 uA	
P _o = 61 uW	
C _a = 14.3 uF	
L _a = 100 mH	

Classification: T4
 Max. Ambient temp:
 -20°C ≤ Ta ≤ +50°C



 See Security Advice on Page 14
 Lire le avertissement de sécurité sur la page 14

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for HART with Trex Device Communicator communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			Date	Name	Drawing-Number	Page
issued	10.06.2016	Wn			2016 19 50 0	2
checked	10.06.2016	Due				15 Pages

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritten zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

Hazardous Classified Area

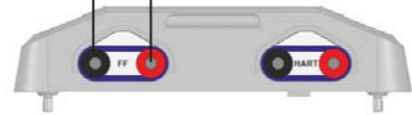
Unclassified Area

for device classification,
see separate approval
of device

ZONE 1, IIC, T4
Class I, Division 1, Groups A, B, C and D

Any Approved
Associated
Apparatus,
see Note 4

FOUNDATION fieldbus
Connection Terminals



Trex Device Communicator
communication module

Any Approved
FOUNDATION fieldbus
FISCO Device. See Note 5

Any Approved
FOUNDATION fieldbus
FISCO Device. See Note 5

Any Approved
FOUNDATION fieldbus
FISCO Device. See Note 5

Any Approved
FOUNDATION fieldbus
FISCO Device. See Note 5

MULTIPLE
FOUNDATION
fieldbus DEVICES
(Number is
limited by the
requirement to
meet all other
IS requirements
for the network.)

For Non-FISCO installation

$U_i (V_{max}) = 30 \text{ Vdc}$
 $I_i (I_{max}) = 380 \text{ mA}$
 $P_i (P_{max}) = 1.3 \text{ W}$
 $C_i = 0 \mu\text{F}$
 $L_i = 0 \text{ mH}$

 $U_o (V_{oc}) = 1.89 \text{ Vdc}$
 $I_o (I_{sc}) = 32 \mu\text{A}$
 $P_o = 61 \mu\text{W}$
 $C_a = 14.3 \mu\text{F}$
 $L_a = 100 \text{ mH}$

 Leakage current:
 less than or equal to $50 \mu\text{A}$

 Classification: T4

 Max. Ambient temp:
 $-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

TABLE 2 -
CSA ENTITY PARAMETERS for FOUNDATION fieldbus (Non-FISCO)
with Trex Device Communicator communication module

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Connection drawing for FOUNDATION fieldbus (Non-FISCO) on the Trex Device Communicator communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

		Date		Name		Drawing-Number		Page	
								3	15
issued	checked	10.06.2016	10.06.2016	Wn	Due	2016 19 50 0		Pages	

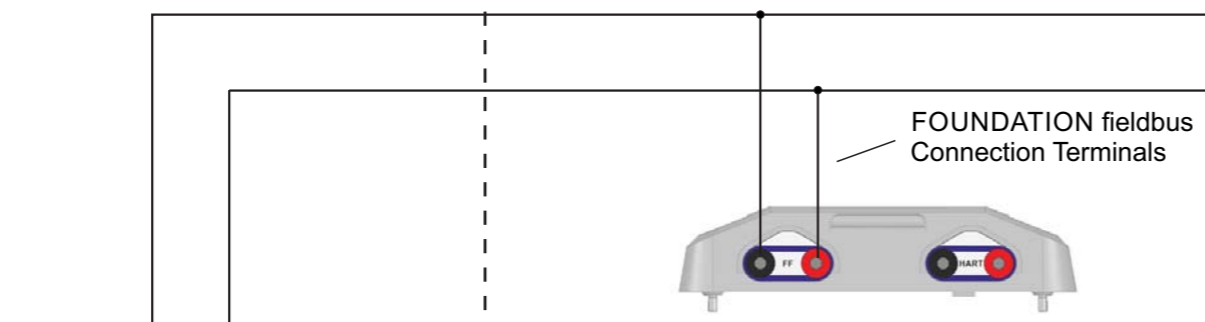
Hazardous Classified Area

Unclassified Area

for device classification,
see separate approval
of device

ZONE 1, IIC, T4
Class I, Division 1, Groups A, B, C and D

Any Approved
FISCO Associated
Apparatus,
see Note 4



Trex Device Communicator
communication module

- Any Approved FOUNDATION fieldbus FISCO Device. See Note 5
- Any Approved FOUNDATION fieldbus FISCO Device. See Note 5
- Any Approved FOUNDATION fieldbus FISCO Device. See Note 5
- Any Approved FOUNDATION fieldbus FISCO Device. See Note 5

MULTIPLE FOUNDATION fieldbus devices (Number is limited by the requirement to meet all other IS and FISCO requirements for the network.)

For FISCO installation

U_i (Vmax) = 30 Vdc
I_i (Imax) = 215 mA(IIC) 380 mA(IIB)
P_i (Pmax) = 1.9 W(IIC)/5.3W(IIB)
C_i = 0 μ F
L_i = 0 mH
U_o (Voc) = 1.89 Vdc
I_o (Isc) = 32 μ A
P_o = 61 μ W
C_a = 14.3 μ F
L_a = 100 mH
Leakage current: less than or equal to 50 μ A
Classification: T4
Max. Ambient temp: -20°C \leq Ta \leq +50°C



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

See Security Advice for the FISCO concept on Page 15
Lire le avertissement de sécurité pour le concept FISCO sur la page 15

TABLE 3 -
CSA ENTITY PARAMETERS for FOUNDATION fieldbus (FISCO)
with Trex Device Communicator communication module

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

STAHL
R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for FOUNDATION fieldbus (FISCO) with Trex Device Communicator communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

		Trex Device Communicator IS Installation Drawing	
		Date	Name
issued	10.06.2016	Wn	Drawing-Number 2016 19 50 0
checked	10.06.2016	Due	
			Page 4
			15 Pages

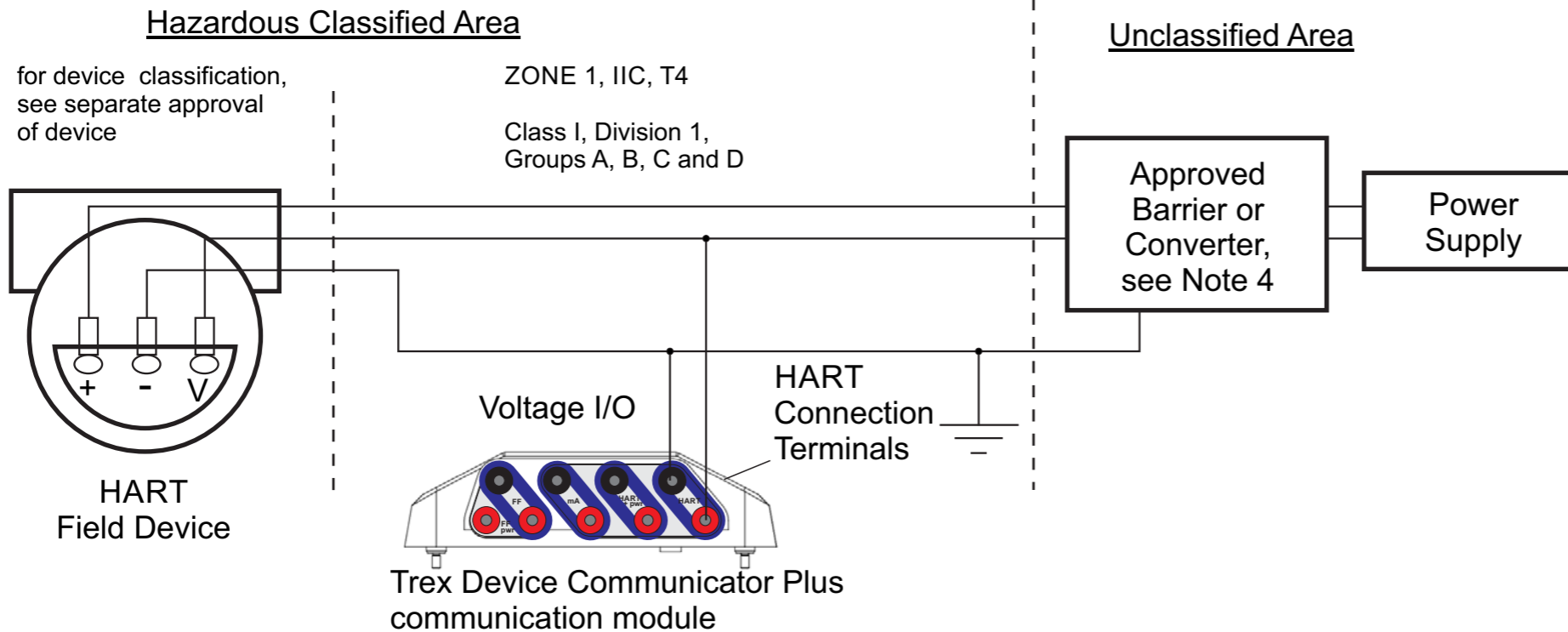
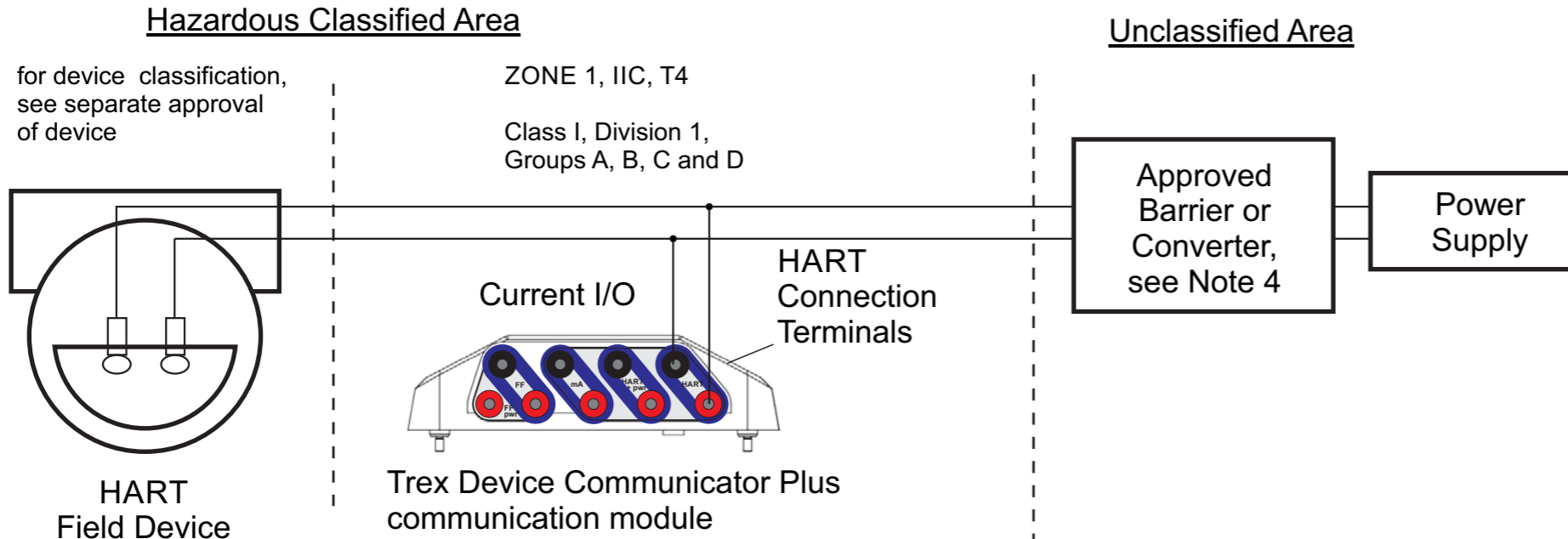
TABLE 4 - CSA ENTITY PARAMETERS for HART with Trex Device Communicator Plus communication module

Input Parameter	
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be <= 30 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be <= 200 mA
P _i (P _{max}) = 1 W	
C _i = 0 uF	Device does not add capacitance to the loop
L _i = 0 mH	Device does not add inductance to the loop

Output Parameter	
U _o (V _{oc}) = 1.89 Vdc	
I _o (I _{sc}) = 1.9 mA	
P _o = 3.6 mW	
C _a = 14.3 uF	
L _a = 100 mH	

Classification: T4

Max. Ambient temp:
-20°C ≤ T_a ≤ +50°C



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for HART with device Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			Date	Name	Drawing-Number	Page
issued	10.06.2016	Wn	2016 19 50 0	Due		5
checked	10.06.2016					15 Pages

TABLE 5 - CSA ENTITY PARAMETERS for HART pwr with Trex Device Communicator Plus communication module

Input Parameter	
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be <= 30 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be <= 200 mA
P _i (P _{max}) = 1 W	
C _i = 0 uF	Device does not add capacitance to the loop
L _i = 0 mH	Device does not add inductance to the loop

Output Parameter	
U _o (V _{oc}) = 25.69 Vdc	
I _o (I _{sc}) = 105 mA	
P _o = 668 mW	
C _a = * nF	
L _a = * uH	

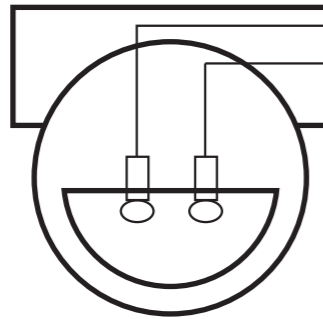
Classification: T4
 Max. Ambient temp:
 -20°C ≤ Ta ≤ +50°C

* Output parameter L/C				
C _a	57 nF	64 nF	75 nF	102 nF
L _a	1000 uH	750 uH	500 uH	100 uH

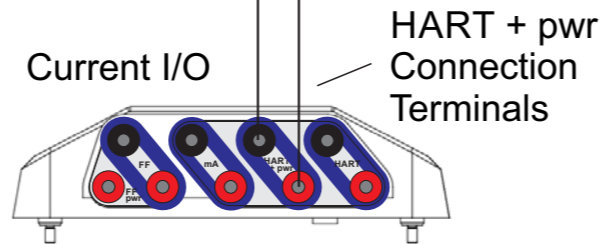
Hazardous Classified Area

for device classification,
 see separate approval
 of device

ZONE 1, IIC, T4
 Class I, Division 1, Groups A, B, C and D



HART
 Field Device



Trex Device Communicator Plus
 communication module



See Security Advice on Page 14
 Lire le avertissement de sécurité
 sur la page 14

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung
 weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den
 Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
 Adolf-Grimme-Allee 8
 D- 50829 Köln (Cologne), Germany
 TEL: +49 (0)221-76806-1000
 FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for HART with
 Trex Device Communicator Plus
 communication module and internal
 power supply

Keine Änderung ohne Prüfung durch Prüfstelle
 (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval
 (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			Date	Name	Drawing-Number	Page
issued	10.06.2016	Wn	2016 19 50 0	Due		6
checked	10.06.2016					15

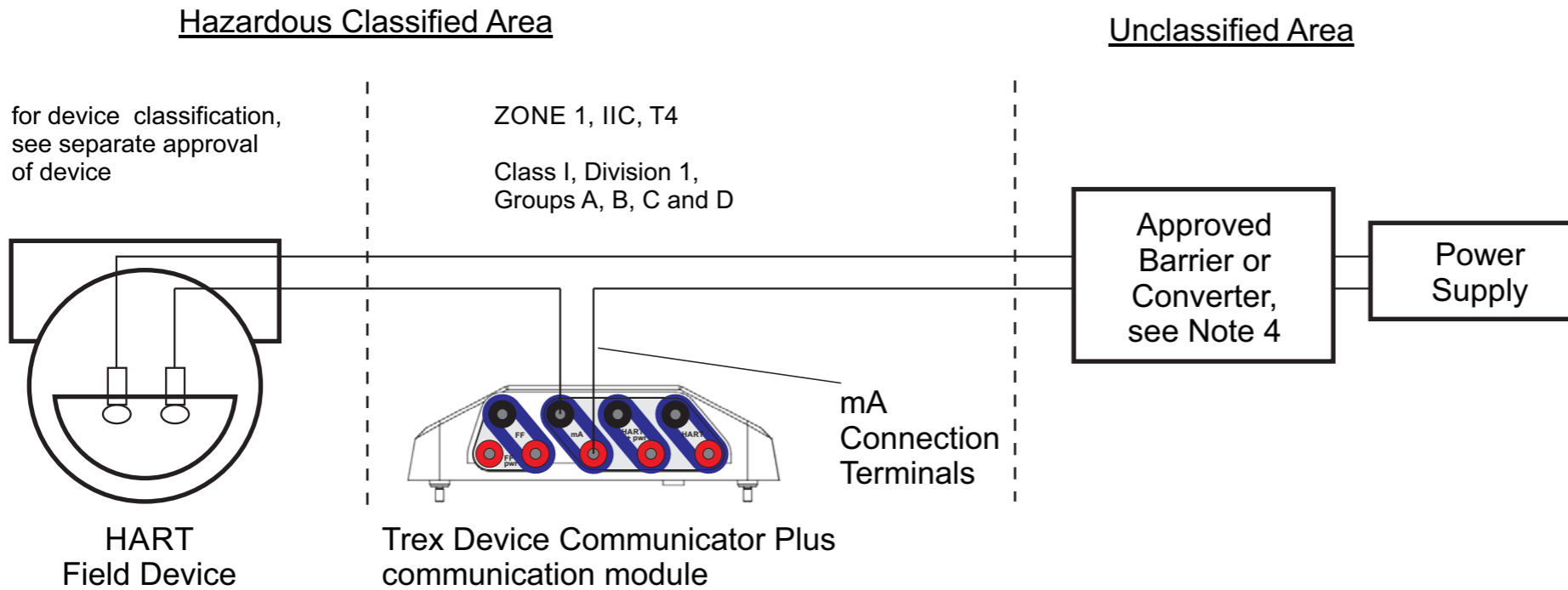
TABLE 6 - CSA ENTITY PARAMETERS for the mA Meter with Trex Device Communicator Plus communication module

Input Parameter	
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be <= 30 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be <= 200 mA
P _i (P _{max}) = 1 W	
C _i = 0 uF	Device does not add capacitance to the loop
L _i = 0 mH	Device does not add inductance to the loop

Output Parameter	
U _o (V _{oc}) = 0 Vdc	
I _o (I _{sc}) = 0 mA	
P _o = 0 mW	
C _a = - uF	
L _a = - mH	

Classification: T4

Max. Ambient temp:
-20°C ≤ T_a ≤ +50°C



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Connection drawing for mA terminals on Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

	Date	Name
issued	10.06.2016	Wn
checked	10.06.2016	Due

Drawing-Number
2016 19 50 0

Page 7
15 Pages

Trex Device Communicator
IS Installation Drawing

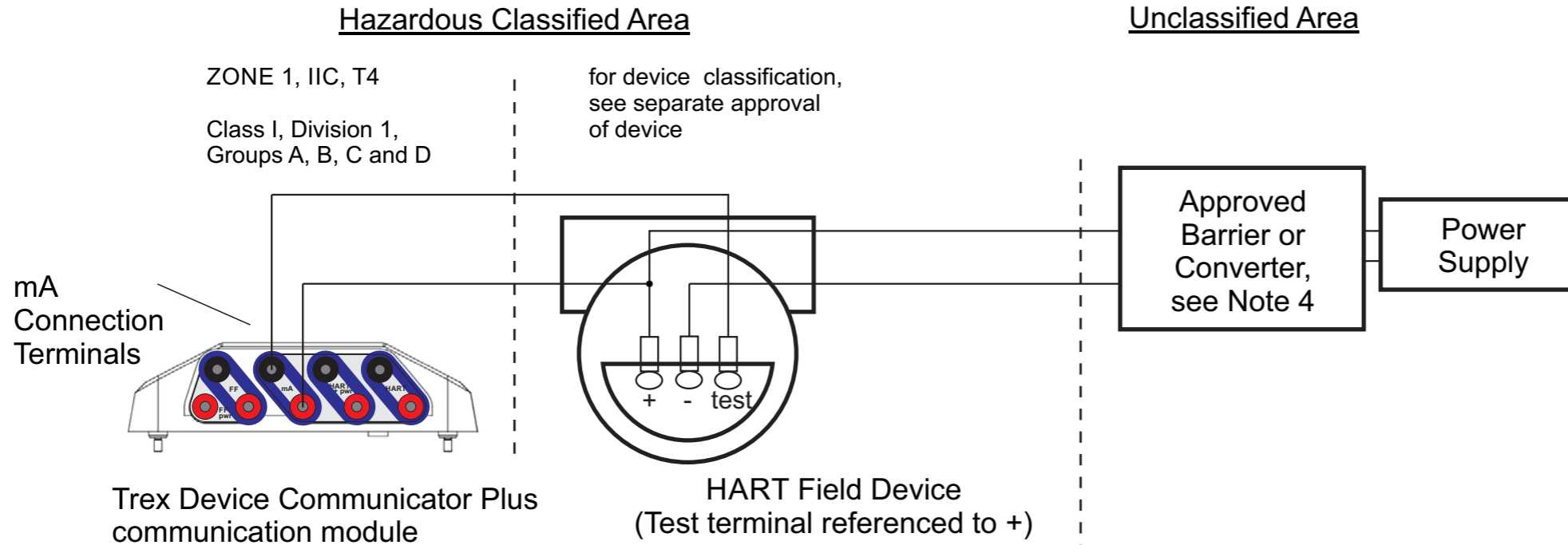
TABLE 7 - CSA ENTITY PARAMETERS for the mA Meter with Trex Device Communicator Plus communication module

Input Parameter	
Ui (Vmax) = 30 Vdc	Vt or Voc of loop must be <= 30 Vdc
li (Imax) = 200 mA	It or Isc of loop must be <= 200 mA
Pi (Pmax) = 1 W	
Ci = 0 uF	Device does not add capacitance to the loop
Li = 0 mH	Device does not add inductance to the loop

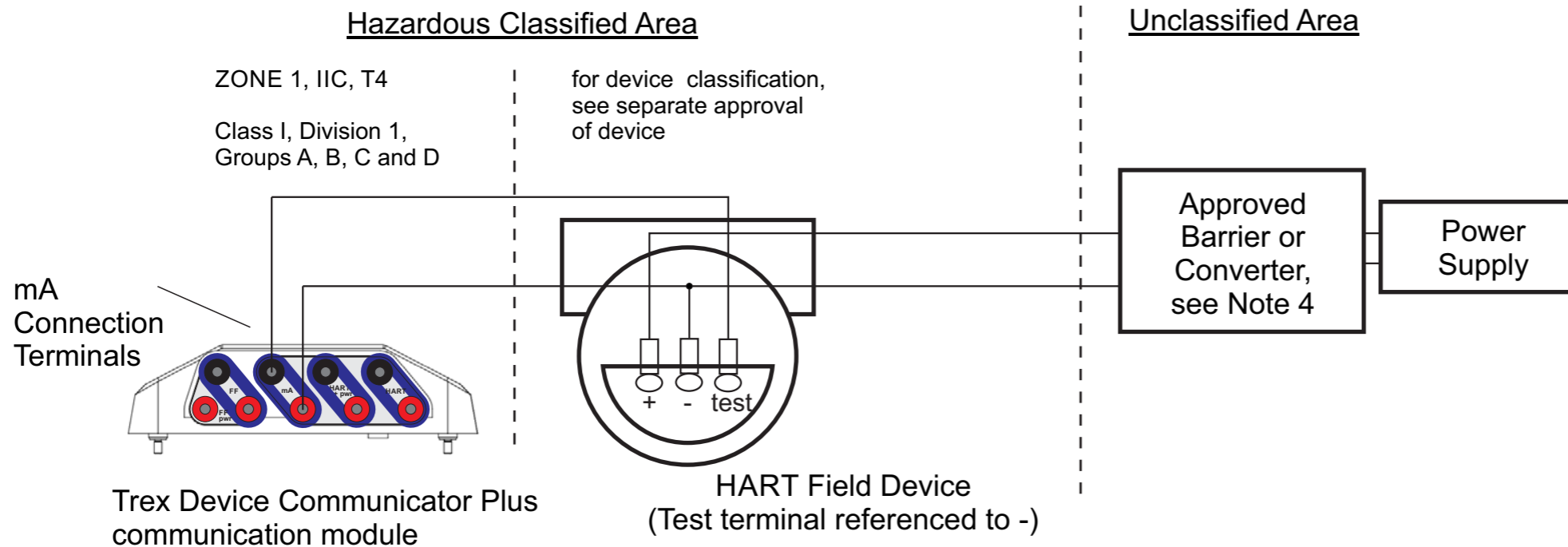
Output Parameter	
Uo (Voc) = 0 Vdc	
Io (Isc) = 0 mA	
Po = 0 mW	
Ca = - uF	
La = - mH	

Classification: T4

Max. Ambient temp:
-20°C ≤ Ta ≤ +50°C



 See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14



 **R. STAHL HMI Systems GmbH**
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for mA terminals on the Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing

Date	Name	Drawing-Number	Page
10.06.2016	Wn	2016 19 50 0	8
10.06.2016	Due		15 Pages

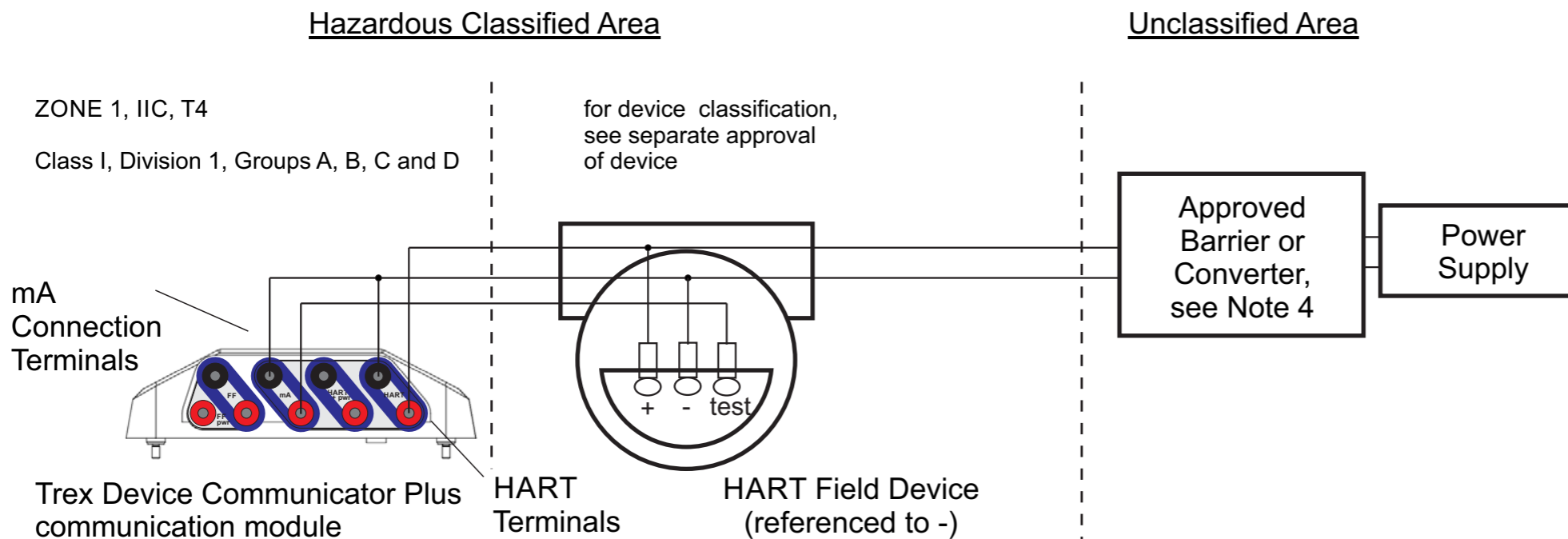
Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

TABLE 8 - CSA ENTITY PARAMETERS for the mA Meter with Trex Device Communicator Plus communication module

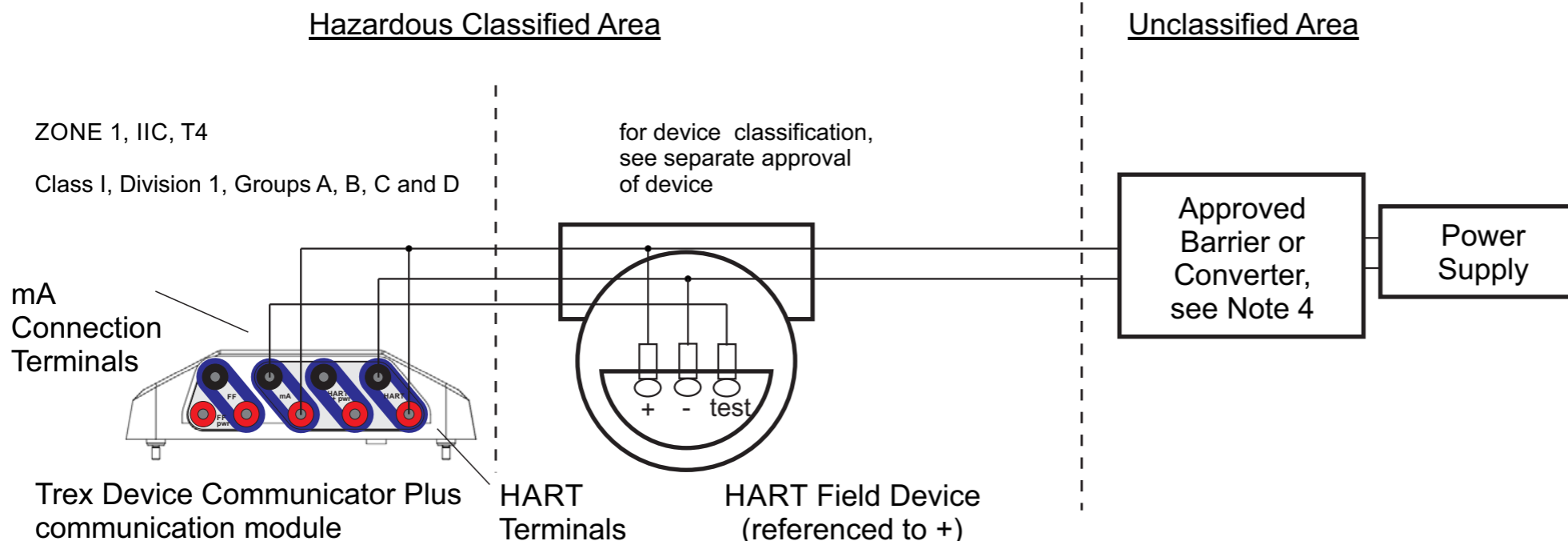
Input Parameter		Output Parameter
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be ≤ 30 Vdc	U _o (V _{oc}) = 1.89 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be ≤ 200 mA	I _o (I _{sc}) = 1.9 mA
P _i (P _{max}) = 1 W		P _o = 3.6 mW
C _i = 0 uF	Device does not add capacitance to the loop	C _a = 14.3 μF
L _i = 0 mH	Device does not add inductance to the loop	L _a = 100 mH

Classification: T4

Max. Ambient temp:
-20°C ≤ T_a ≤ +50°C



 See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14



Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

 **R. STAHL HMI Systems GmbH**
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for mA terminals on the Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing

Date	Name	Drawing-Number	Page
10.06.2016	Wn	2016 19 50 0	9
10.06.2016	Due		15 Pages

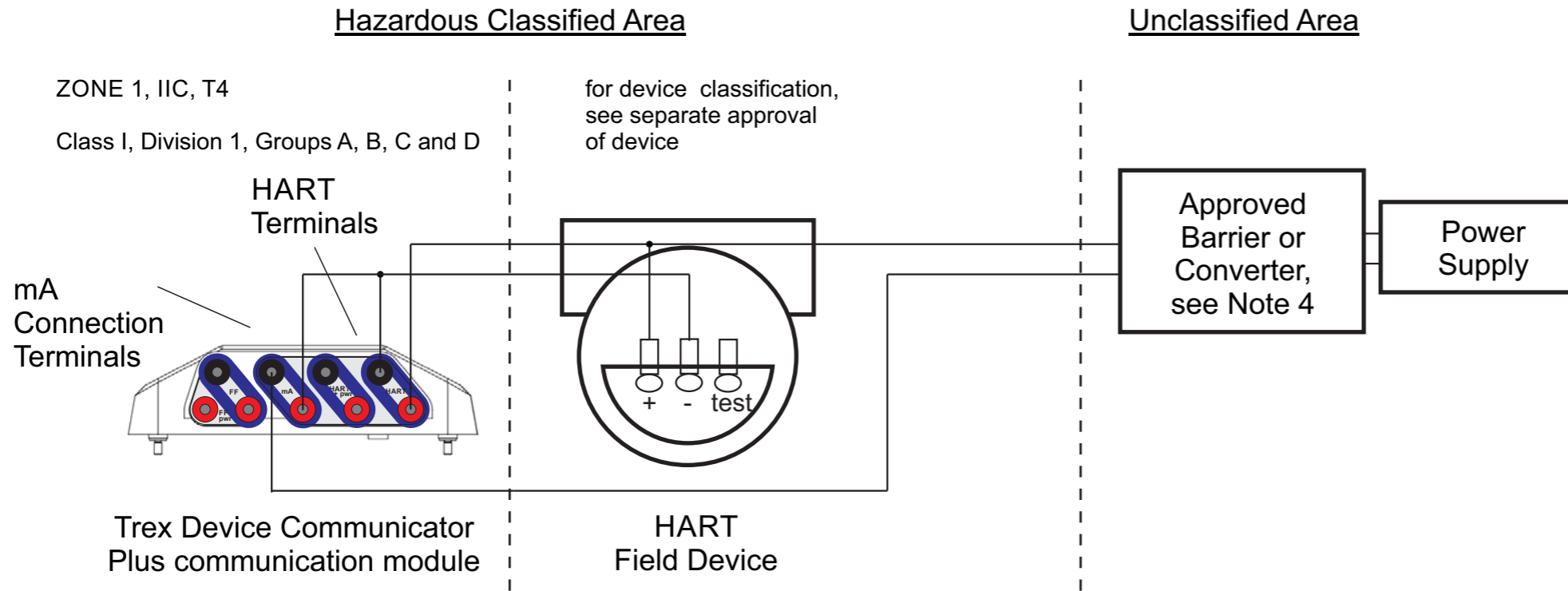
TABLE 9 - CSA ENTITY PARAMETERS for the mA Meter with Trex Device Communicator Plus communication module

Input Parameter	
U _i (V _{max}) = 30 Vdc	V _t or V _{oc} of loop must be <= 30 Vdc
i _i (I _{max}) = 200 mA	I _t or I _{sc} of loop must be <= 200 mA
P _i (P _{max}) = 1 W	
C _i = 0 uF	Device does not add capacitance to the loop
L _i = 0 mH	Device does not add inductance to the loop

Output Parameter	
U _o (V _{oc}) = 1.89 Vdc	
I _o (I _{sc}) = 1.9 mA	
P _o = 3.6 mW	
C _a = 14.3 uF	
L _a = 100 mH	

Classification: T4

Max. Ambient temp:
-20°C ≤ T_a ≤ +50°C



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Connection drawing for mA terminals on the Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			Drawing-Number	Page
	Date	Name	2016 19 50 0	10
issued	10.06.2016	Wn		15 Pages
checked	10.06.2016	Due		

Hazardous Classified Area

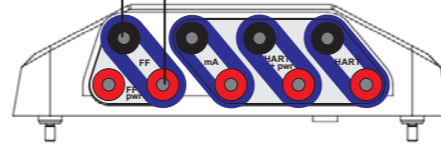
Unclassified Area

for device classification,
see separate approval
of device

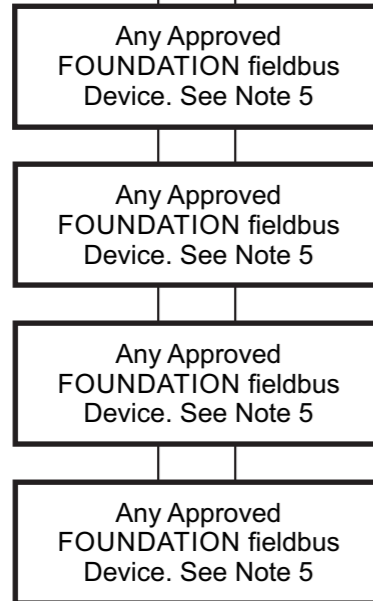
ZONE 1, IIC, T4
Class I, Division 1, Groups A, B, C and D

Any Approved
Associated
Apparatus,
see Note 4

FOUNDATION fieldbus
Connection Terminals



Trex Device Communicator Plus
communication module



MULTIPLE
FOUNDATION
fieldbus devices
(Number is
limited by the
requirement to
meet all other
IS requirements
for the network.)

For Non-FISCO installation

$U_i (V_{max}) = 30 \text{ Vdc}$
 $I_i (I_{max}) = 380 \text{ mA}$
 $P_i (P_{max}) = 1.3 \text{ W}$
 $C_i = 0 \mu\text{F}$
 $L_i = 0 \text{ mH}$

 $U_o (V_{oc}) = 1.89 \text{ Vdc}$
 $I_o (I_{sc}) = 32 \mu\text{A}$
 $P_o = 61 \mu\text{W}$
 $C_a = 14.3 \mu\text{F}$
 $L_a = 100 \text{ mH}$

 Leakage current:
 less than or equal to $50 \mu\text{A}$

 Classification: T4

 Max. Ambient temp:
 $-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

TABLE 10 -
CSA ENTITY PARAMETERS for FOUNDATION fieldbus (Non-FISCO)
with Trex Device Communicator Plus communication module

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Connection drawing for FOUNDATION Fieldbus (Non-FISCO) on the Trex Device Communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

		Date		Name		Drawing-Number		Page	
								11	15
issued	checked	10.06.2016	10.06.2016	Wn	Due	2016 19 50 0		Pages	

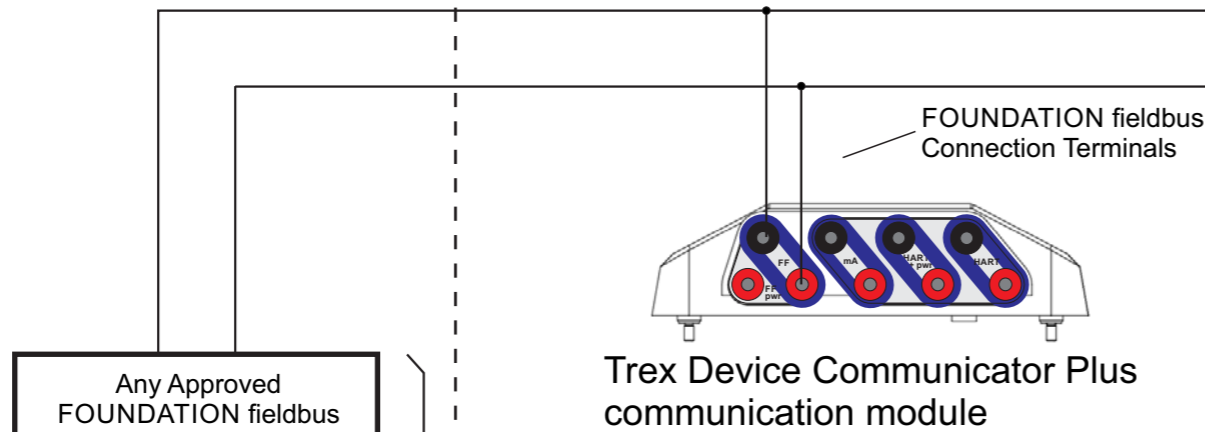
Hazardous Classified Area

Unclassified Area

for device classification,
see separate approval
of device

ZONE 1, IIC, T4
Class I, Division 1, Groups A, B, C and D

Any Approved
FISCO Associated
Apparatus,
see Note 4



Trex Device Communicator Plus
communication module

- Any Approved FOUNDATION fieldbus Device. See Note 5
- Any Approved FOUNDATION fieldbus Device. See Note 5
- Any Approved FOUNDATION fieldbus Device. See Note 5
- Any Approved FOUNDATION fieldbus Device. See Note 5

MULTIPLE FOUNDATION fieldbus devices (Number is limited by the requirement to meet all other IS requirements for the network.)

For FISCO installation

$U_i (V_{max}) = 30 \text{ Vdc}$
 $I_i (I_{max}) = 215 \text{ mA(IIC)}$
 380 mA(IIB)
 $P_i (P_{max}) = 1.9 \text{ W(IIC)}/5.3\text{W(IIB)}$
 $C_i = 0 \mu\text{F}$
 $L_i = 0 \text{ mH}$
 $U_o (V_{oc}) = 1.89 \text{ Vdc}$
 $I_o (I_{sc}) = 32 \mu\text{A}$
 $P_o = 61 \mu\text{W}$
 $C_a = 14.3 \mu\text{F}$
 $L_a = 100 \text{ mH}$
 Leakage current:
 less than or equal to $50 \mu\text{A}$
 Classification: T4
 Max. Ambient temp:
 $-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$



See Security Advice on Page 14

Lire le avertissement de sécurité sur la page 14

See Security Advice for the FISCO concept on Page 15

Lire le avertissement de sécurité pour le concept FISCO sur la page 15

TABLE 11 -
CSA ENTITY PARAMETERS for FOUNDATION fieldbus (FISCO)
with Trex Device Communicator Plus communication module



R. STAHL HMI Systems GmbH
 Adolf-Grimme-Allee 8
 D- 50829 Köln (Cologne), Germany
 TEL: +49 (0)221-76806-1000
 FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Connection drawing for FOUNDATION fieldbus (FISCO) with device Trex device communicator Plus communication module

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

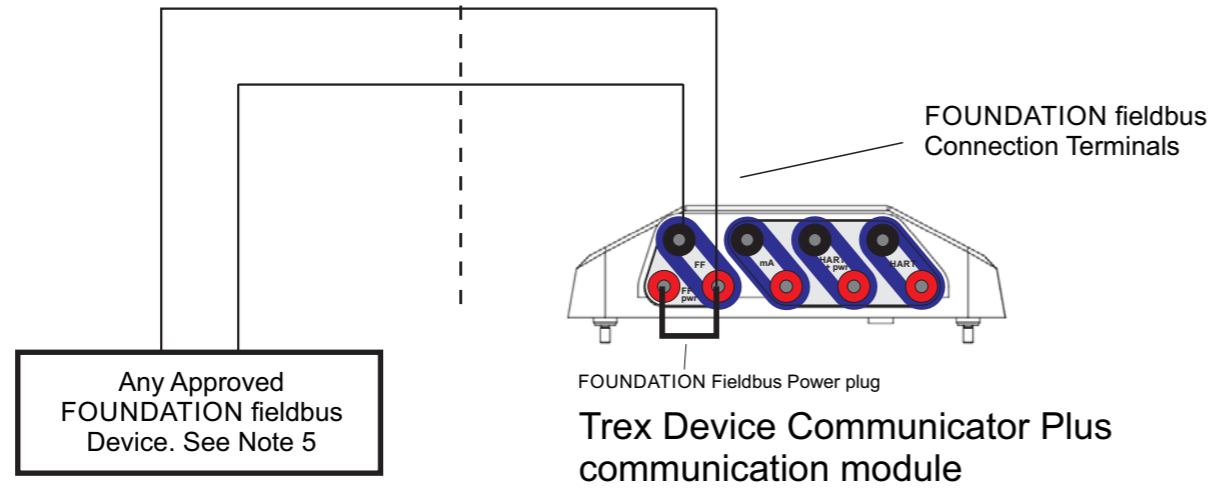
Trex Device Communicator IS Installation Drawing			Date	Name	Drawing-Number	Page
issued	10.06.2016	Wn	2016 19 50 0	Due		12
checked	10.06.2016					15

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

Hazardous Classified Area

for device classification,
see separate approval
of device

ZONE 1, IIC, T4
Class I, Division 1, Groups A, B, C and D



For FISCO and non-FISCO installation

$U_i (V_{max}) = 17.5 \text{ Vdc}$
 $I_i (I_{max}) = 380 \text{ mA}$

 $P_i (P_{max}) = 1.3 \text{ W}$
 $C_i = 231 \text{ nF}$
 $L_i = 0 \text{ mH}$

 $U_o (V_{oc}) = 17.31 \text{ Vdc}$
 $I_o (I_{sc}) = 199 \text{ mA}$
 $P_o = 0.94 \text{ W}$
 $C_a = * \text{ nF}$
 $L_a = * \mu\text{H}$

 Leakage current:
 less than or equal to $50 \mu\text{A}$

 Classification: T4

 Max. Ambient temp:
 $-20^\circ\text{C} \leq T_a \leq +50^\circ\text{C}$



See Security Advice on Page 14
Lire le avertissement de sécurité sur la page 14

* Output parameter L/C			
Ca	19 nF	69 nF	115 nF
La	100 μH	50 μH	30 μH

TABLE 12 -
CSA ENTITY PARAMETERS for FOUNDATION fieldbus with internal power supply with Trex Device Communicator Plus communication module



R. STAHL HMI Systems GmbH
 Adolf-Grimme-Allee 8
 D- 50829 Köln (Cologne), Germany
 TEL: +49 (0)221-76806-1000
 FAX: +49 (0)221-76806-4100

Modification/Name	Date	checked
1		
2		
3		
4		

Connection drawing for FOUNDATION fieldbus with device Trex Device Communicator Plus communication module and internal power supply

Keine Änderung ohne Prüfung durch Prüfstelle (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			
Date	Name	Drawing-Number	Page
10.06.2016	Wn	2016 19 50 0	13
10.06.2016	Due		15 Pages

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.

Security Advices Avertissements de sécurité

1. No revision to drawing prior to certification body.
La modification des plans n'est pas autorisée sans l'accord de l'organisme notifié.
2. The Associated Apparatus must be NRTL approved in accordance to IEC 60079-11.
Les appareils associés doivent avoir une certification NRTL selon IEC 60079-11.
3. Manufacturer's installation drawing must be followed when installing associated apparatus.
Les plans d'installation des produits des appareils associés doivent être respectés s'ils sont installés.
4. Interconnection of nonincendive equipment apparatus with associated apparatus is allowed when the following is true:
L'interconnexion des équipements non- inflammable est correcte uniquement si les paramètres suivants sont respectés:

nonincendive Equipment Associated Apparatus
Equipment non- inflammable Appareil associé

Vmax	>	Voc or Uo
Imax	>	Isc or Io
Pi	>	Po
Ci + Ccable	≤	Ca (or Co)
Li + Lcable	≤	La (or Lo)

5. for ATEX / IECEx: Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically safe systems for Hazardous (classified) Locations" and the National Electrical Code (ANSI/NFPA 70)
Pour ATEX/ IECEx : l'installation doit être conforme à la norme ANSI/ISA RP12.06.01 (installation de systèmes à sécurité intrinsèque pour les emplacements dangereux (classés) et le National Electrical Code (ANSI/NFPA 70)

for cCSAus: Installation should be in accordance with Canadian Electrical Code, CSA 22.1, Part 1.
Pour cCSAAus : l'installation doit être conforme au code canadien de l'électricité CSA 22.1 partie 1.

WARNING:

- Substitution of components may impair Safety.

AVERTISSEMENT:

- La substitution de composants peut compromettre la sécurité.

Calculation of cable length

- 1.) Determination of maximum possible capacitance of cable:

$$C_{max} = C_a - C_i \text{ (associated Apparatus)}$$

- Determination of maximum possible inductance of cable:

$$L_{max} = L_a - L_i \text{ (associated Apparatus)}$$

- 2.) Determination of maximum possible cable length by capacitance and inductance of cable:

$$\text{length } C = \frac{C_{max}}{C_{cable}} \text{ (*1)}$$

$$\text{length } L = \frac{L_{max}}{L_{cable}} \text{ (*1)}$$

- 3.) Determination of maximum length of cable:

length C or length L, whatever is less.

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D- 50829 Köln (Cologne), Germany
TEL: +49 (0)221-76806-1000
FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1			
2			
3			
4			

Security Advices

Keine Änderung ohne Prüfung durch Prüfstelle
(z.B. UL, FM, CSA)!
No changes prior to Certification Body approval
(e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing		Drawing-Number		Page
		2016 19 50 0		14
issued	10.06.2016	Wn	15 Pages	
checked	10.06.2016	Due		

FISCO CONCEPT

THE FISCO CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR INTERCONNECTION IS THAT THE VOLTAGE (U_i OR V_{max}), THE CURRENT (I_i OR I_{max}) AND THE POWER (P_i OR P_{max}) WHICH AN INTRINSICALLY SAFE APPARATUS CAN RECEIVE AND REMAIN INTRINSICALLY SAFE CONSIDERING FAULTS, MUST BE EQUAL OR GREATER THAN VOLTAGE (U_o , V_{oc} OR V_t), THE CURRENT (I_o , I_{sc} OR I_t) AND THE POWER (P_o OR P_{max}) LEVELS WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS, CONSIDERING FAULTS AND APPLICABLE FACTORS. IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (C_i) AND THE INDUCTANCE (L_i) OF EACH APPARATUS (OTHER THAN THE TERMINATION) CONNECTED TO THE FIELD BUS MUST BE LESS THAN OR EQUAL TO 5 nF and 10 uH RESPECTIVELY.

IN EACH SEGMENT, ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELD BUS SYSTEM. THE VOLTAGE U_o (OR V_{oc} OR V_t) OF THE ASSOCIATED APPARATUS IS LIMITED TO A RANGE OF 14 V TO 24 Vdc ALL OTHER EQUIPMENT CONNECTED TO THE BUS CABLE HAS TO BE PASSIVE, MEANING THAT THEY ARE NOT ALLOWED TO PROVIDE ENERGY TO THE SYSTEM, EXCEPT A LEAKAGE CURRENT OF 50uA FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS GALVANIC ISOLATION TO ENSURE THAT THE INTRINSICALLY SAFE FIELD BUS CIRCUIT REMAINS PASSIVE.

THE CABLE USED TO INTERCONNECT DEVICES NEEDS TO HAVE THE PARAMETERS IN THE FOLLOWING RANGE:

- Loop Resistance R' : 15.....150 Ohm/km
- Inductance per unit length L' : 0.4.....1 mH/km
- Capacitance per unit length C' : 80.....200 nF/km
- $C' = C'$ line/line + 0.5 C' line/screen, if both lines are floating, or
- $C' = C'$ line/line + C' line/screen, if the screen is connected to one line
- Length of trunk cable: less than or equal to 1000m
- Length of spur cable: less than or equal to 30m
- Length of spur splice: less than or equal to 1m

AT EACH END OF THE TRUNK CABLE AN APPROVED INFALLIBLE LINE TERMINATION WITH THE FOLLOWING PARAMETERS IS SUITABLE:

- $R = 90.....100$ Ohm
- $C = 0.....2.2$ uF

ONE OF THE ALLOWED TERMINATIONS MIGHT ALREADY BE INTEGRATED IN THE ASSOCIATED APPARATUS. THE NUMBER OF PASSIVE APPARATUS CONNECTED TO THE BUS SEGMENT IS NOT LIMITED DUE TO I.S. REASONS. IF THE ABOVE RULES ARE RESPECTED, UP TO A TOTAL LENGTH OF 1000 m (SUM OF TRUNK AND ALL SPUR CABLES) OF CABLE IS PERMITTED. THE INDUCTANCE AND THE CAPACITANCE OF THE CABLE WILL NOT IMPAIR THE INTRINSIC SAFETY OF THE INSTALLATION.

Alle Rechte vorbehalten! Diese Zeichnung darf ohne unsere ausdrückliche Zustimmung weder vervielfältigt, noch Dritte zugänglich gemacht werden. Außerdem darf sie durch den Empfänger oder durch Dritte nicht in anderer Art und Weise missbräuchlich verwendet werden.



R. STAHL HMI Systems GmbH
 Adolf-Grimme-Allee 8
 D- 50829 Köln (Cologne), Germany
 TEL: +49 (0)221-76806-1000
 FAX: +49 (0)221-76806-4100

	Modification/Name	Date	checked
1	EPL marking for CSA added	10.02.15	Dü
2			
3			
4			

FISCO Concept

Keine Änderung ohne Prüfung durch Prüfstelle
 (z.B. UL, FM, CSA)!
 No changes prior to Certification Body approval
 (e.g. UL, FM, CSA)!

Trex Device Communicator IS Installation Drawing			Page	15
issued	Date	Name	Drawing-Number	Pages
checked	10.06.2016	Wn	2016 19 50 0	15 Pages
	10.06.2016	Due		