



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 DEK 16.0007X	Page 1 of 5	<u>Certificate history:</u>
Status:	Current	Issue No: 2	Issue 1 (2017-12-12) Issue 0 (2016-09-21)
Date of Issue:	2020-08-26		
Applicant:	Transus Instruments BV Bloesemlaan 4 3897 LN Zeewolde Netherlands		
Equipment:	Ultrasonic Flowmeter type UIM Series Flowmeter		
Optional accessory:			
Type of Protection:	Ex ia		
Marking:	Ex ia IIC T4 Ga		

Approved for issue on behalf of the IECEx
Certification Body:

R. Schuller

Position:

Certification Manager

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:

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
Netherlands





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Date of issue: 2020-08-26

Issue No: 2

Manufacturer: **Transus Instruments BV**
Bloesemlaan 4
3897 LN Zeewolde
Netherlands

Manufacturing
locations:

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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[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 Report:

[NL/DEK/ExTR16.0010/02](#)

Quality Assessment Report:

[NL/DEK/QAR16.0009/02](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The UIM Series Flowmeter consists of an Electronic Unit and a flowmeter body. The electronic unit consists of a main electronic board, various optional I/O boards, an LC display and keypad, and is housed in an aluminium or stainless steel enclosure. The electronic unit connects to up to eight ultrasonic transducers and an optional pressure and/or temperature sensor that may be mounted in the flowmeter body.

Ambient temperature range -40 °C to +60 °C.

Process temperature range -40 °C to +80 °C. Or higher than 80 °C, provided that the Electronics Unit is mounted at sufficient distance from the process pipe to negate the influence of heating from the process. The transducers may be connected by cabling of up to 3 meter length.

The maximum temperature process temperature for each temperature class shall then be limited per the table below.

Temperature class	Maximum process temperature
T1	445 °C
T2	295 °C
T3	195 °C
T4	130 °C

Electrical data

For connection details and electrical data, refer to the control drawing 01_0198 (see attachment).

Installation instructions

The instruction manual and the control drawing 01_0198 shall be followed in detail to assure proper and safe operation.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The transducer must be installed in an enclosure that protects the front face of the transducer against impact. This additional enclosure may be the process pipe.

Precautions shall be taken to minimize the risk from electrostatic discharge of painted parts.

For Flowmeter electronic enclosures made of aluminium only:

If it is mounted in an area where the use of EPL Ga equipment is required, it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. Assessed per IEC 60079-0 Ed. 7
2. New Dual RS485 Option Board
3. Minor constructional changes
4. Optional remote installation with higher process temperature



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Additional information: Nomenclature

UIM Electronics assembly model number		
UIME-AB-C-DEFGH		
A	x	Number of paths (1 to 4)
B	x	Application type
C	x	Meter size
D - SLOT1	0 1 2 3	Not installed RS485 Option board (01-0020) RS485 IO 4..20mA option board (01-0202) Dual RS485 IO option board (01-0251)
E - SLOT2	0 1 2 3	Not installed P/T option board (01-0022) 4..20mA HART option board (01-0203) Dual RS485 IO option board (01-0251)
F – LCD	0 1 2	Not installed Installed SS316 enclosure with display/keypad
G	1 2	M20 cable gland entries 1/2" NPT cable gland entries
H	x	options, not affecting explosion safety

Annex:

[224254600.Attachment 1.pdf](#)

FUNCTION	TERMINALS	U _i	I _i	P _i	C _i	L _i	U _o	I _o	P _o	C _o	L _o
		V	mA	mW	µF	mH	V	mA	mW	µF	mH
STANDARD I/O											
LOOP POWER SUPPLY	PWR0+	29	100	670	0.03	0.3	---	---	---	---	---
	PWR0-										
FREQUENCY/PULSE OUTPUT	D0A	29	100	670	0.03	0.3	---	---	---	---	---
	D0B										
SLOT 1, RS485 Option board (01-0020)											
POWER SUPPLY	PWR1+	28	100	670	0.03	0.3	---	---	---	---	---
	PWR1-										
RS485 COMMUNICATION	D1A	4.2	250	250	20	neg	4.12	150	150	---	---
	D1B										
FREQUENCY/PULSE OUTPUT	D2A	15	100	250	0.03	0.02	---	---	---	---	---
	D2B										
FREQUENCY/PULSE OUTPUT	D3A	15	100	250	0.03	0.02	---	---	---	---	---
	D3B										
SLOT 1, RS485 IO 4..20mA option board (01-0202)											
LOOP POWER SUPPLY /4..20mA	PWR1+	29	100	670	0.03	0.3	---	---	---	---	---
	PWR1-										
RS485 COMMUNICATION	D1A	4.2	250	250	20	neg	4.12	150	150	---	---
	D1B										
FREQUENCY/PULSE OUTPUT	D2A	15.5	100	250	0.03	0.02	---	---	---	---	---
	D2B										
FREQUENCY/PULSE OUTPUT	D3A	15.5	100	250	0.03	0.02	---	---	---	---	---
	D3B										
SLOT 1, Dual RS485 IO option board (01-0251)											
LOOP POWER SUPPLY /4..20mA	PWR1+	29	100	670	0.03	0.3	---	---	---	---	---
	PWR1-										
RS485 COMMUNICATION - PORT 1	D1A	4.2	250	250	20	neg	4.12	150	150	---	---
	D1B										
FREQUENCY/PULSE OUTPUT	D2A	15.5	100	250	0.03	0.02	---	---	---	---	---
	D2B										
FREQUENCY/PULSE OUTPUT	D3A	15.5	100	250	0.03	0.02	---	---	---	---	---
	D3B										
RS485 COMMUNICATION - PORT 2	D4A	4.2	250	250	20	neg	4.12	150	150	---	---
	D4B										
PRESSURE / TEMPERATURE	PRESS	REFER TO SAFETY INSTRUCTIONS FOR INTERCONNECTION TO APPROVED EQUIPMENT CABLE LENGTH NOT TO EXCEED 2 meter (6.7ft)									
	TEMP										
SLOT 2, P/T option board (01-0022)											
PRESSURE	PRESS1	REFER TO SAFETY INSTRUCTIONS FOR INTERCONNECTION TO APPROVED EQUIPMENT CABLE LENGTH NOT TO EXCEED 2 meter (6.7ft)									
	PRESS2										
	PRESS3										
	PRESS4										
TEMPERATURE	TEMP1	REFER TO SAFETY INSTRUCTIONS FOR INTERCONNECTION TO APPROVED EQUIPMENT CABLE LENGTH NOT TO EXCEED 2 meter (6.7ft)									
	TEMP2										
	TEMP3										
	TEMP4										
SLOT 2, 4..20mA HART option board (01-0203)											
POWER SUPPLY	LPWR2+	29	100	670	0.03	0.3	---	---	---	---	---
	LPWR2-										

UIM Electronics assembly model number	
UIME-AB-C-DEFGH	
A	x Number of paths (1 to 4)
B	x Application type
C	x Meter size
D - SLOT 1	0 Not installed 1 RS485 Option board (01-0020) 2 RS485 IO 4..20mA option board (01-0202) 3 Dual RS485 IO option board (01-0251)
E - SLOT 2	0 Not installed 1 P/T option board (01-0022) 2 4..20mA HART option board (01-0203) 3 Dual RS485 IO option board (01-0251)
F - LCD	0 Not installed 1 Installed 2 SS316 enclosure with display/keypad
G	1 M20 cable gland entries 2 1/2" NPT cable gland entries
H	x options, not affecting explosion safety

LOCATE THE UIM MODEL NUMBER ON THE NAMEPLATE OF THE ENCLOSURE AND REFER TO TABLE FOR SPECIFIC INTRINSIC SAFETY PARAMETERS

Ex ia IIC T4 Ga
-40°C ≤ Tamb ≤ +60°C
IECEX DEK16.0007X

CE 0344
II 1 G Ex ia IIC T4 Ga
-40°C ≤ Tamb ≤ +60°C
DEKRA 16ATEX0014 X

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
SURFACE FINISH: Ra<0.8
TOLERANCES: ACC. TO ISO/DIN 2768-mK

DEBUR AND
BREAK SHARP
EDGES

DO NOT SCALE DRAWING

REVISION DWG A-08

REVISION PRT/ASM



TITLE:
**Control drawing
ATEX/IECEX**

NAME	SIGNATURE	DATE	MATERIAL:
DRAWN		3-6-2020	

DWG NO. **01_0198** A3

DATE PRINTED: 18-6-2020

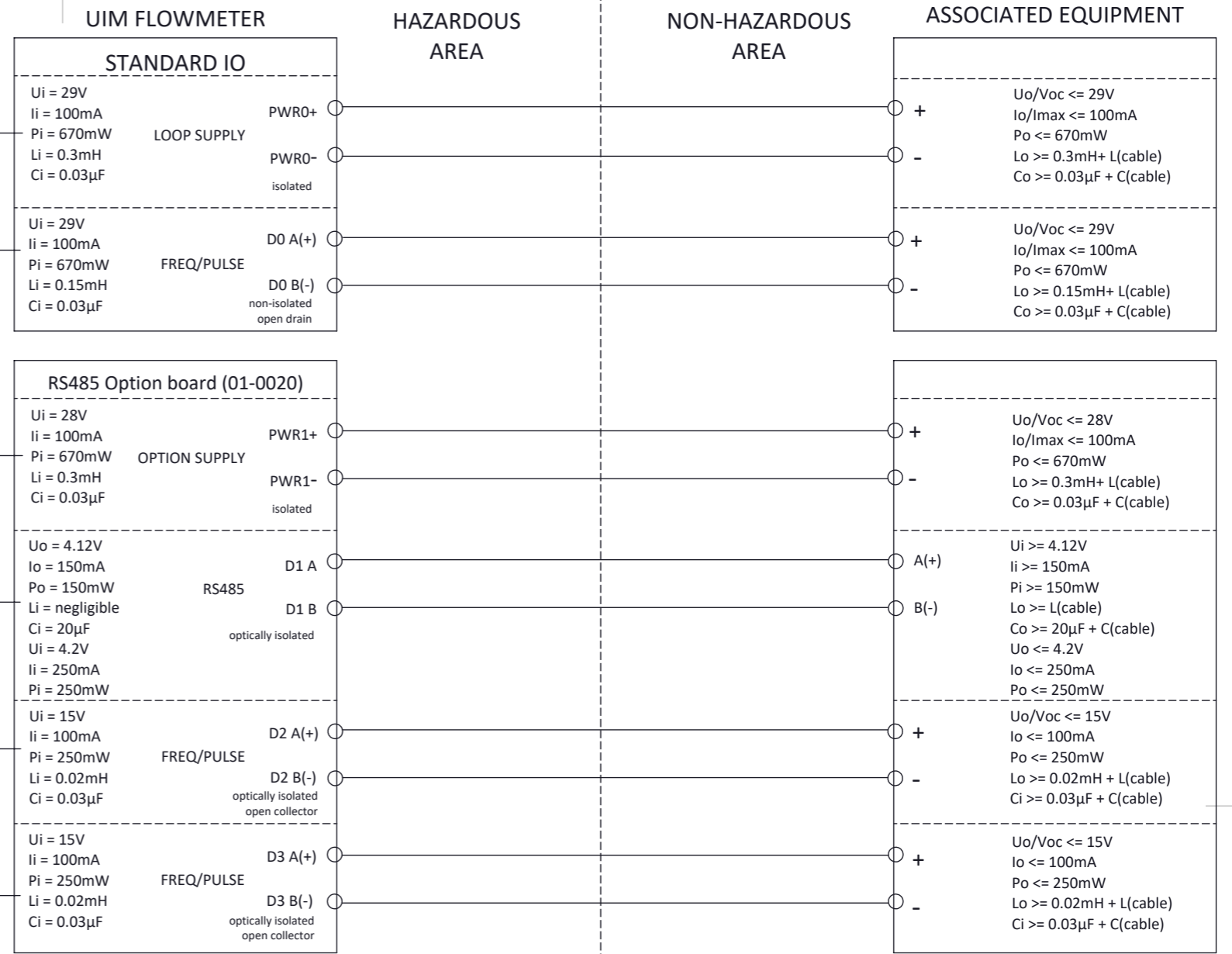
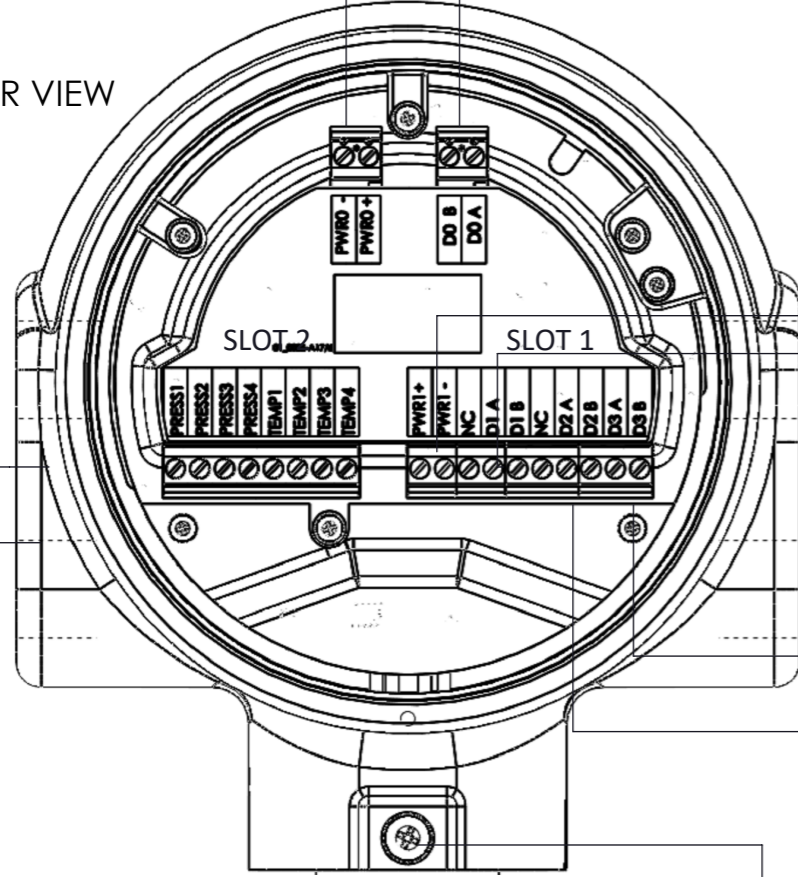
WEIGHT:

SCALE:1:1

SHEET 1 OF 4

SLOT 1 FITTED WITH RS485 option board (01-0020)
 SLOT 2 FITTED WITH PT option board (01-0022)

REAR VIEW



Ultrasonic transducers
 Up to 4 pairs

FLOWBODY

Optional Ex ia
 Pressure sensor

Optional Ex ia
 temperature sensor

Warning!
 EXPLOSION HAZARD
 SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

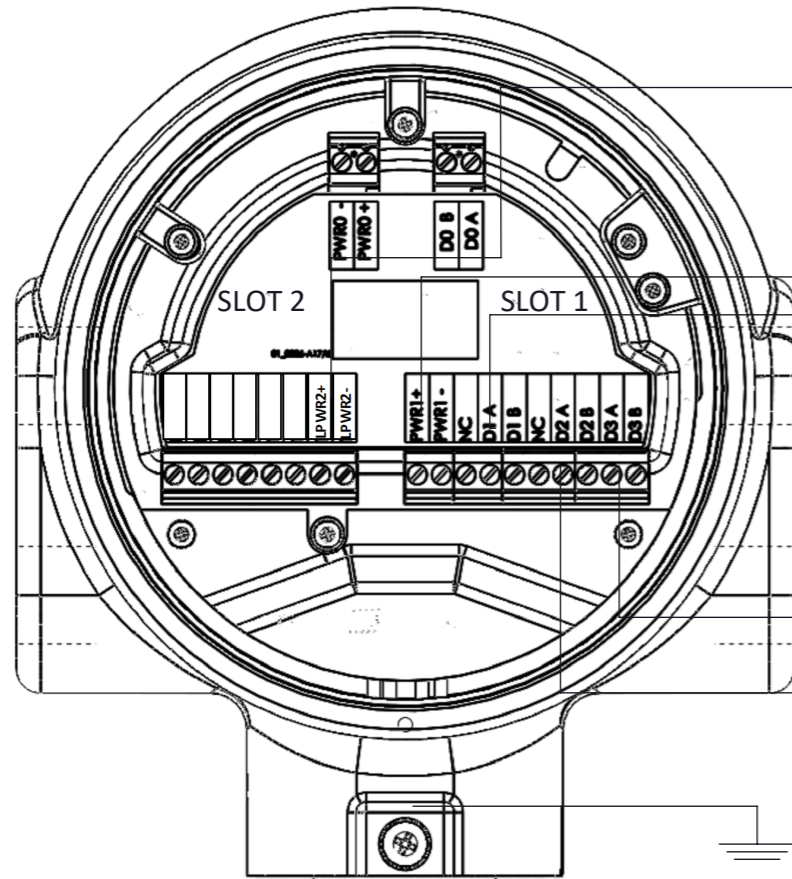
Only for interconnection with Exi or [Exi] Associated equipment.

Comply with EU directive 2014/34/EU
 And EN/IEC 60079-0 EN/IEC60079-11

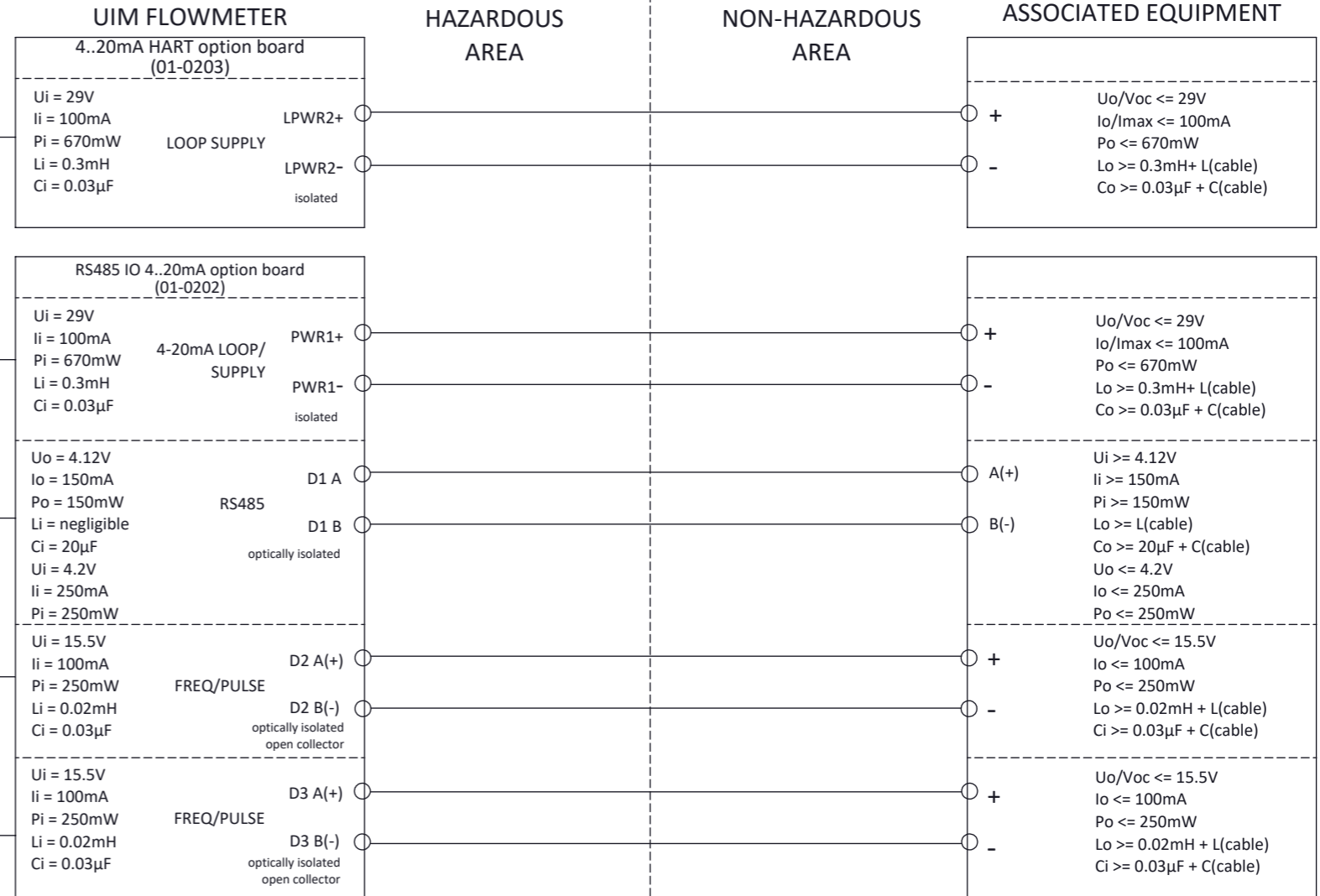
INSTALL PER IEC 60079-14

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: Ra<0.8 TOLERANCES: ACC. TO ISO/DIN 2768-mK		DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION DWG	A-08
				REVISION PRT/ASM	
		TITLE:		Control drawing ATEX/IECEX	
NAME	SIGNATURE	DATE	MATERIAL:	DWG NO.	A3
DRAWN		3-6-2020	AI31 304	01_0198	
DATE PRINTED: 18-6-2020		WEIGHT:	SCALE:1:1	SHEET 2 OF 4	

REAR VIEW



SLOT 1 FITTED WITH RS485 4..20mA option board
SLOT 2 FITTED WITH 4..20mA HART option board



Warning!
EXPLOSION HAZARD
SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

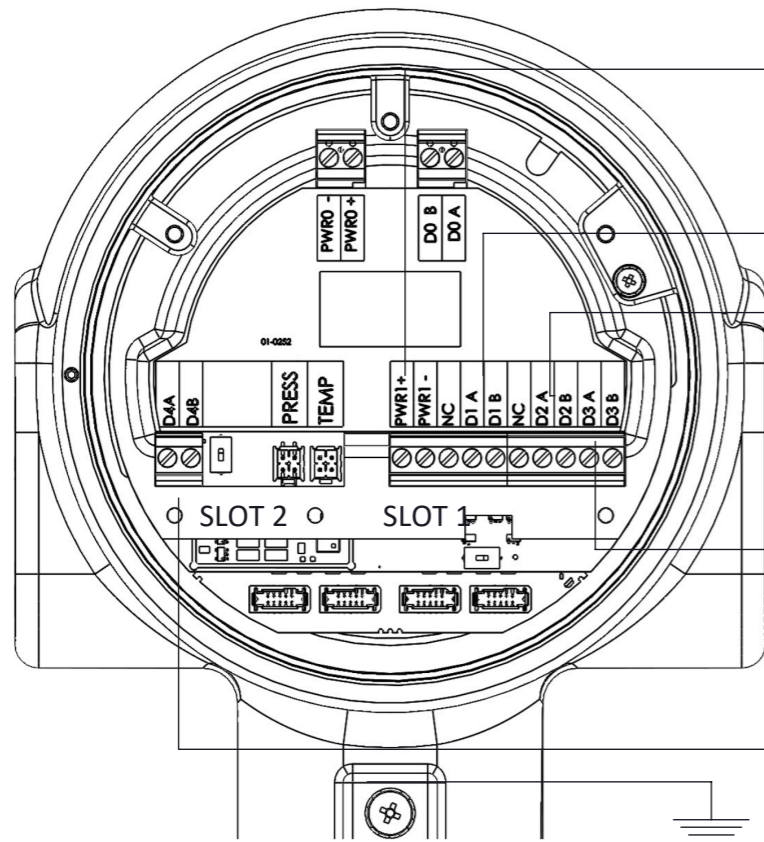
Only for interconnection with Exi or [Exi] Associated equipment.

Comply with EU directive 2014/34/EU
And EN/IEC 60079-0 EN/IEC60079-11

INSTALL PER IEC 60079-14

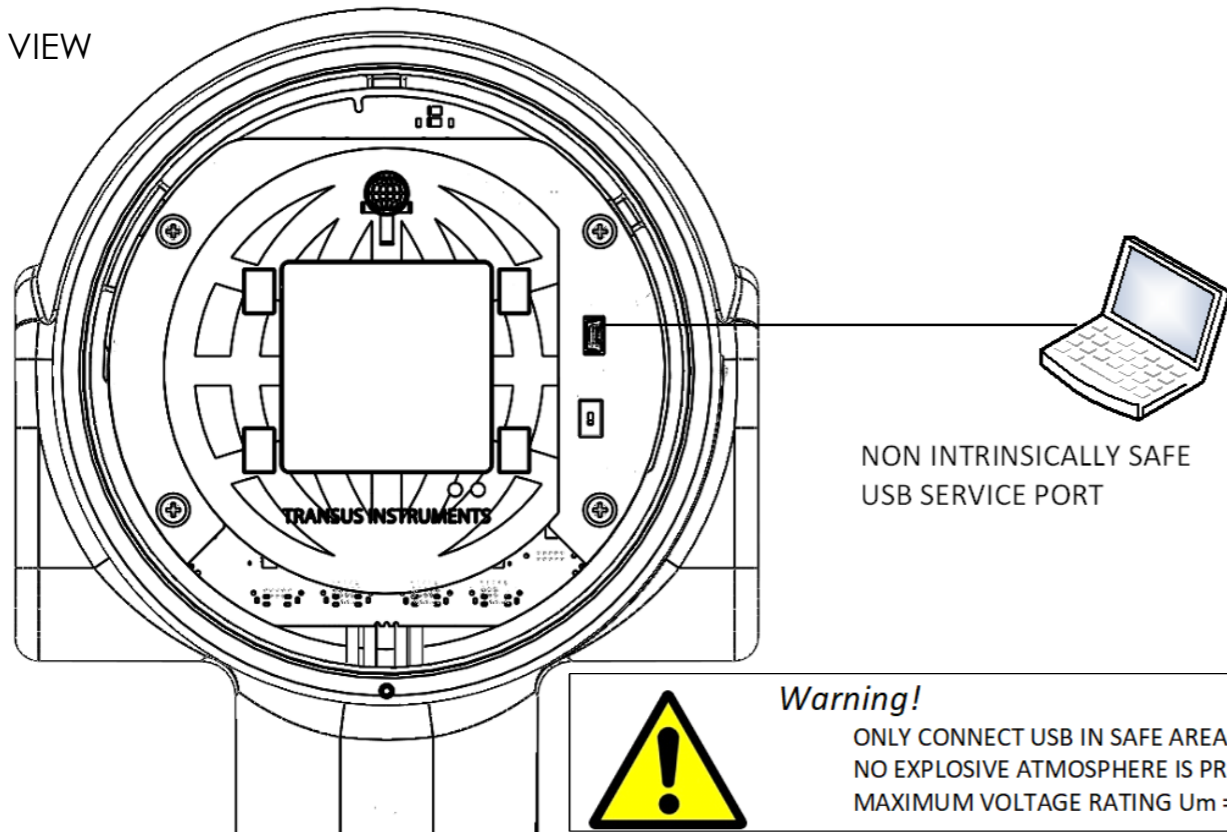
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: Ra<0.8 TOLERANCES: ACC. TO ISO/DIN 2768-mK			DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION DWG	A-08
			REVISION PRT/ASM			
			TITLE: Control drawing ATEX/IECEx			
NAME	SIGNATURE	DATE	MATERIAL:	DWG NO.	A3	
DRAWN		3-6-2020	AIISI 304	01_0198		
DATE PRINTED: 18-6-2020			WEIGHT:	SCALE:1:1	SHEET 3 OF 4	

REAR VIEW



SLOT 1 AND SLOT 2 FITTED WITH Dual RS485 option board

FRONT VIEW



NON INTRINSICALLY SAFE
USB SERVICE PORT



Warning!
ONLY CONNECT USB IN SAFE AREA OR ENSURE NO EXPLOSIVE ATMOSPHERE IS PRESENT.
MAXIMUM VOLTAGE RATING $U_m = 250$ VAC

UIM FLOWMETER

Dual RS485 IO option board (01-0251)	
$U_i = 29V$ $I_i = 100mA$ $P_i = 670mW$ $L_i = 0.3mH$ $C_i = 0.03\mu F$	4-20mA LOOP/ SUPPLY PWR1+ PWR1- isolated
$U_o = 4.12V$ $I_o = 150mA$ $P_o = 150mW$ $L_i = \text{negligible}$ $C_i = 20\mu F$ $U_i = 4.2V$ $I_i = 250mA$ $P_i = 250mW$	RS485 PORT 1 D1 A D1 B optically isolated
$U_i = 15.5V$ $I_i = 100mA$ $P_i = 250mW$ $L_i = 0.02mH$ $C_i = 0.03\mu F$	FREQ/PULSE D2 A(+) D2 B(-) optically isolated open collector
$U_i = 15.5V$ $I_i = 100mA$ $P_i = 250mW$ $L_i = 0.02mH$ $C_i = 0.03\mu F$	FREQ/PULSE D3 A(+) D3 B(-) optically isolated open collector
$U_o = 4.12V$ $I_o = 150mA$ $P_o = 150mW$ $L_i = \text{negligible}$ $C_i = 20\mu F$ $U_i = 4.2V$ $I_i = 250mA$ $P_i = 250mW$	RS485 PORT 2 D4 A D4 B optically isolated

HAZARDOUS
AREA

NON-HAZARDOUS
AREA

ASSOCIATED EQUIPMENT

$U_o/V_{oc} \leq 29V$ $I_o/I_{max} \leq 100mA$ $P_o \leq 670mW$ $L_o \geq 0.3mH + L(\text{cable})$ $C_o \geq 0.03\mu F + C(\text{cable})$	+ -
$U_i \geq 4.12V$ $I_i \geq 150mA$ $P_i \geq 150mW$ $L_o \geq L(\text{cable})$ $C_o \geq 20\mu F + C(\text{cable})$ $U_o \leq 4.2V$ $I_o \leq 250mA$ $P_o \leq 250mW$	A(+) B(-)
$U_o/V_{oc} \leq 15.5V$ $I_o \leq 100mA$ $P_o \leq 250mW$ $L_o \geq 0.02mH + L(\text{cable})$ $C_i \geq 0.03\mu F + C(\text{cable})$	+ -
$U_o/V_{oc} \leq 15.5V$ $I_o \leq 100mA$ $P_o \leq 250mW$ $L_o \geq 0.02mH + L(\text{cable})$ $C_i \geq 0.03\mu F + C(\text{cable})$	+ -
$U_i \geq 4.12V$ $I_i \geq 150mA$ $P_i \geq 150mW$ $L_o \geq L(\text{cable})$ $C_o \geq 20\mu F + C(\text{cable})$ $U_o \leq 4.2V$ $I_o \leq 250mA$ $P_o \leq 250mW$	A(+) B(-)

Warning!
EXPLOSION HAZARD
SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

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And EN/IEC 60079-0 EN/IEC60079-11

INSTALL PER IEC 60079-14

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: Ra<0.8 TOLERANCES: ACC. TO ISO/DIN 2768-mK		DEBUR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION DWG	A-08
		TITLE:		Control drawing ATEX/IECEX	
NAME	SIGNATURE	DATE	MATERIAL:	DWG NO.	A3
DRAWN		3-6-2020	AI31 304	01_0198	
DATE PRINTED:	18-6-2020	WEIGHT:	SCALE:1:1	SHEET 4 OF 4	