

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20141028-E466388  
**Report Reference** E466388-20100730  
**Issue Date** 2014-OCTOBER-28

**Issued to:** ENDRESS+HAUSER FLOWTEC AG  
KAEGENSTR 7  
CH-4153 REINACH BL1 SWITZERLAND

**This is to certify that  
representative samples of**

TELEMETERING EQUIPMENT FOR USE IN HAZARDOUS  
LOCATIONS TELEMETERING EQUIPMENT FOR USE  
IN ZONE CLASSIFIED HAZARDOUS LOCATIONS

Refer to addendum page for Models/Product

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** Refer to addendum page for Standard(s) for Safety  
**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's  
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services

UL LLC

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contact a local UL Customer Service Representative at [www.ul.com/contactus](http://www.ul.com/contactus)



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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

## Models/Product

USL, CNL – Class I, Groups A, B, C, and D Hazardous Locations.  
USL - Class I, Zone 0, AEx ia IIC Hazardous Locations,  
CNL - Class I, Zone 0, Ex ia IIC Hazardous Locations.

Nanomass Density Meter, models DCDB or DCEB, followed by 2 alphanumeric characters, followed by FA, or 8A, followed by 1 alphanumeric character, followed by A, B, C, or D, followed by alphanumeric characters. Intrinsically safe when installed per Control Drawing No. FES0237A (for RS232 option), FES0238A (for USB option), as applicable.

## Standard(s) for Safety

Standard No. UL 913 - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations

Standard No. UL 60079-0 - Electrical Apparatus for Explosive Gas Atmospheres – Part 0: General Requirements

Standard No. UL 60079-11 - Electrical Apparatus for Explosive Gas Atmospheres – Part 11: Intrinsic Safety "i"

Standard No. CAN/CSA C22.2 No. 157-92 - Intrinsically Safe and Non-incendive Equipment for Use in Hazardous Locations

Standard No. CAN/CSA-C22.2 NO. 60079-0:11 - Electrical apparatus for explosive gas atmospheres – Part 0: General requirements

Standard No. CAN/CSA-C22.2 NO. 60079-11:11 - Electrical apparatus for explosive gas atmospheres – Part 11: Intrinsic safety "i"



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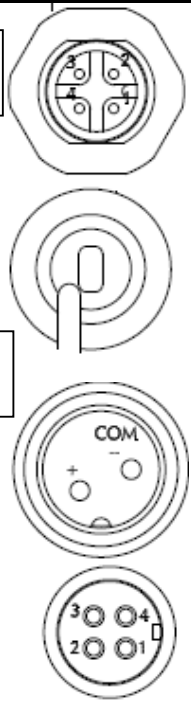
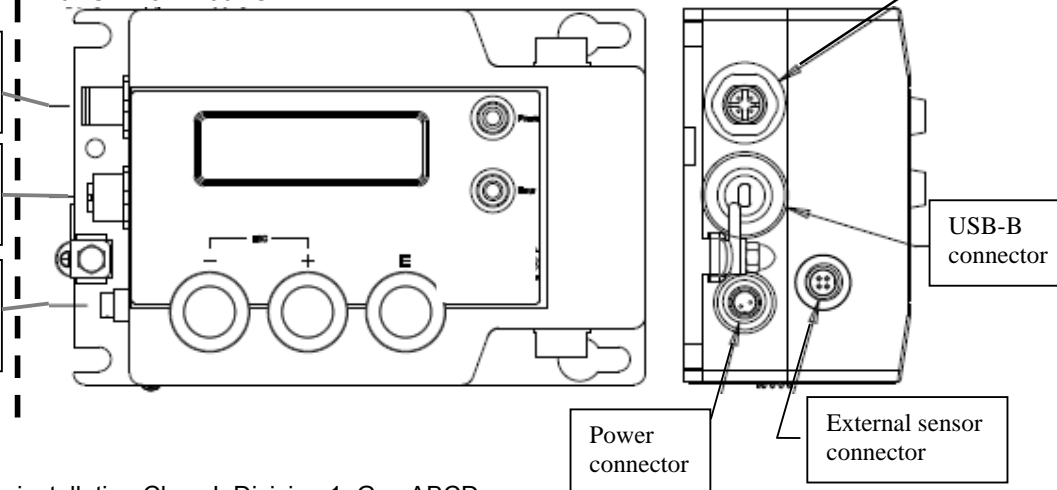


**Non Hazardous Location**

**Hazardous (Classified) Location**

Class I, Division 1, Groups A,B,C,D  
 Class I, Zone 0, Goup IIC T4  
 $-20\text{ °C} \leq T_a \leq +60\text{ °C}$

- Any Third Party Listed Barrier or Associated Apparatus
- Capped off \*
- Any Third Party Listed Barrier or Associated Apparatus



**4-20 mA connector**  
 Channel 1      Channel 2  
 1, 2              3,4  
 + - or +, polarity insensitive  
 Passive

**Mini USB-B connector**  
 Mini USB-B connection  
 Warnings:  
 - \* USB data download and configuration done only in non-hazardous location.  
 - Do not have both, power applied and USB connected simultaneously

**Power connector**  
 DC 8 – 30 V

**External sensor connector**

Pins	Pressure	Temperature
1	+ 5VDCout power	Iout
2	V+ (0-4.5 VDC) signal in	V+
3	V- (0 VDC) signal in	V-
4	Ground	Ireturn

Connect simple apparatus  
 - Or Endress+Hauser PN UC2 – T3C sensor - cable length max. 100 ft  
 - Or Entity parameters:  $U_o=5.88\text{ V}$ ,  $I_o=400\text{ mA}$ ,  $P_o=0.6\text{ W}$ ,  $C_o=41000\text{ nF}$ ,  $L_o=20\text{ }\mu\text{H}$   
 $P_o = (I_o * U_o) / 4$

Notes: Intrinsically safe installation Class I, Division 1, Gps ABCD

1. Associated apparatus must be installed in accordance with its manufacturer's control drawings and
  - the National Electrical Code (ANSI/NFPA 70) for installations in the United States
  - the Canadian Electrical Code for installations in Canada
2. Use entity approved safety barrier or other associated equipment that satisfies the following conditions:  
 $V_{oc}, V_t \text{ or } U_o \leq V_{max}$  or  $U_i$  and  $I_{sc}, I_t \text{ or } I_o \leq I_{max}$  or  $I_i$  and  $P_o \text{ or } P_{max} \leq P_i$  and  $C_o \geq C_i + C_{cable}$  and  $L_o \geq L_i + L_{cable}$   
 Where  $C_{cable}$  and  $L_{cable}$  are not know the following parameters shall be used:  $C_{cable}=60\text{ pF/foot}$ ,  $L_{cable}=200\text{ nH/foot}$
3. 4-20 mA circuits should be separated by individually grounded shields.
4. No user replacable parts inside
5. Associated apparatus output current must be limited by a resistor such that the output voltage-current plot has a linear characteristic.
6. Warning: Disconnect power before servicing.  
 Warning: The apparatus enclosure contains aluminium. Care must be taken to avoid ignition hazards due to impact or friction.

Aenderungen:	A	04.07.2014 / utz	F	Mat. No. 71300737
	B		G	
	C		H	
	D		J	
	E		K	
Ersteller: FES / utz				FILE: M:\ZEICHN\FES0238A\FES0238A.doc

Entity Parameters					
	$V_{max}, U_i$	$I_{max}, I_i$	$P_i$	$C_i$	$L_i$
Power	30 V	300 mA	1.1 W	55 nF	0.22 mH
4-20 mA	30 V	320 mA	1.1 W	48 nF	0.15 mH

**UL Control Drawing**  
**Entity Concept Class I Division 1**  
**Nanomass, USB version**

Gezeichnet	04.07.2014	utz
Geprüft		
Ex-geprüft	04.07.2014	utz
Gesehen		

**Endress+Hauser**   
 Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach

**FES0238 A** 1/1