



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx LCIE 14.0031X Issue No: 2 Certificate history:  
Status: **Current** Page 1 of 4 Issue No. 2 (2016-11-29)  
Date of Issue: **2016-11-29** Issue No. 1 (2016-02-10)  
Applicant: **Elster GmbH** Issue No. 0 (2014-08-20)  
Steinernstrasse 19-21, 55252 Mainz-Kastel  
**Germany**  
Equipment: **Volume conversion device - type: EK280**  
*Optional accessory:*  
Type of Protection: **Ex ia**  
Marking:  
Ex ia IIB T4 Ga (without radio-module)  
Ex ia IIB T3 Ga (with radio-module)  
(Refer to attachment for full marking)

Approved for issue on behalf of the IECEx  
Certification Body:

Julien Gauthier

Position:

Certification Officer

Signature:  
(for printed version)

Date:

2016-11-29

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**Laboratoire Central des Industries Electriques (LCIE)**  
33 Avenue du General Leclerc  
FR-92260 Fontenay-aux-Roses  
France





# IECEx Certificate of Conformity

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Manufacturer: **Elster GmbH**  
Steinernstrasse 19-21, 55252 Mainz-Kastel  
Germany

Additional Manufacturing location(s):

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 electrical apparatus 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 electrical 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:

FR/LCIE/ExTR14.0035/00 FR/LCIE/ExTR15.0125/00 FR/LCIE/ExTR16.0071/00

### Quality Assessment Report:

DE/TUN/QAR11.0003/03



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The equipment is a volume conversion device intended to measure, record and monitor variable parameters provided from gas meters, pressure or temperature sensors.  
(Refer to attachment for full equipment description).

### CONDITIONS OF CERTIFICATION: YES as shown below:

- a) The intrinsically safe connectors of equipment shall only be connected to certified associated intrinsically safe equipment or simple apparatus. This combination must be compatible as regards the intrinsically safe rules.
- b) Connectors X23 and X24 cannot be used in hazardous area.
- c) Connectors Uext on Modem-adaptor board and X9 in CPU board cannot be used in hazardous area.
- d) Connectors X17 and X18 can only be connected to temperature sensors defined by the manufacturer in technical file.
- e) Connectors X7, X15, X16, X28, X29 and X30 can only be connected to pressure sensors defined by the manufacturer in technical file.

Refer to attachment for additional specific conditions of use.



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Issue 00: Conformity assessment according to IEC 60079-0:2007 Ed. 5 and IEC 60079-11:2011 Ed. 6.0 standards.

### **Issue 01:**

- Add Tekcell battery as alternative supply for CPU board.
- Normative update according to standard IEC 60079-0:2011 Ed. 6.0.

Issue 02: Addition of new Modem-adaptor board equipped with Ex certified radio module ECM-2G-UG350 or ECM-3G-UU270.

### **Annex:**

[IECEX LCIE 14.0031X Issue 02 - Annex 01 - Elster EK208 rev 1.pdf](#)

## ADDITIONAL EQUIPMENT DESCRIPTION

The equipment consists mainly of:

- an aluminum housing,
- a LCD module,
- CPU board powered by external supply or by one or two battery packs (optional four battery packs connected 2x2 in series),
- Modem-adaptor board, powered by battery pack, equipped with internal radio-module (optional) and an antenna for wireless data communication,
- internal or external temperature or pressure sensors,
- and terminals for power supply or data communication.

The following Ex components are assessed as part of the equipment:

Designation of product	Manufacturer	Type	Document of reference
Radio module	Elster	ECM-GW 120	LCIE 10 ATEX 3026U
Radio module	Elster	ECM-2G-UG350 or ECM-3G-UU270	LCIE 16 ATEX 3047U IECEx LCIE 16.0037U
Fuse	Littelfuse	Safe-T-Plus 0259 series	BASEEFA 02 ATEX 0071U IECEx BAS 10.0098U

Operating manual "Volume conversion device EK280", reference 73021209.

## MARKING

Elster GmbH

Address: ...

Type: EK280

Serial number: ...

Year of construction: ...

Ex ia IIB T4 Ga (without radio-module)

Ex ia IIB T3 Ga (with radio-module)

IECEx LCIE 14.0031X

Tamb : -40°C to +60°C

U<sub>i</sub> : ..., I<sub>i</sub> : ..., P<sub>i</sub> : ..., C<sub>i</sub> : ..., L<sub>i</sub> : ..., (\*)

U<sub>o</sub> : ..., I<sub>o</sub> : ..., P<sub>o</sub> : ..., C<sub>o</sub> : ..., L<sub>o</sub> : ..., (\*)

WARNING:

- USE ONLY ELSTER N°73015774, N°73020663, N°73021211 and N°73023225 BATTERIES

- POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS.

(\*): completed with electrical parameters of connectors.

## RATINGS

Batteries used within the apparatus are as follows:

- for CPU board: Elster N°73015774, N°73020663 or N°73023225

- for Modem-adaptor board: Elster N°73021211.

Electrical parameters of intrinsically safe connectors:

Connector	Electrical parameters				
	U <sub>i</sub>	I <sub>i</sub>	P <sub>i</sub>	C <sub>i</sub>	L <sub>i</sub>
U <sub>ext</sub>	U <sub>i</sub> : 30 V	I <sub>i</sub> : 140 mA	P <sub>i</sub> : 0.5 W	C <sub>i</sub> : 0	L <sub>i</sub> : 0
DA1, DA2, DA3, DA4	U <sub>i</sub> : 30 V	I <sub>i</sub> : 140 mA	P <sub>i</sub> : 0.5 W	C <sub>i</sub> : 13.2 nF	L <sub>i</sub> : 6 µH
DCD Rx/D	U <sub>i</sub> : 30 V	I <sub>i</sub> : 140 mA	P <sub>i</sub> : 0.5 W	C <sub>i</sub> : 0	L <sub>i</sub> : 0
RI	U <sub>i</sub> : 30 V	I <sub>i</sub> : 140 mA	P <sub>i</sub> : 0.5 W	C <sub>i</sub> : 8.9 nF	L <sub>i</sub> : 0
DE1, DE2	U <sub>o</sub> : 9.7 V	I <sub>o</sub> : 19.7 mA	P <sub>o</sub> : 48 mW	C <sub>o</sub> : 24 µF	L <sub>o</sub> : 367 mH
DE3, DE4	U <sub>o</sub> : 9.7 V	I <sub>o</sub> : 21 mA	P <sub>o</sub> : 51 mW	C <sub>o</sub> : 24 µF	L <sub>o</sub> : 322 mH
DE5, DE6	U <sub>o</sub> : 9.7 V	I <sub>o</sub> : 1.0 mA	P <sub>o</sub> : 2.4 mW	C <sub>o</sub> : 24 µF	L <sub>o</sub> : 142 H
DTR Tx/D	U <sub>o</sub> : 9.7 V	I <sub>o</sub> : 87 mA	P <sub>o</sub> : 211 mW	C <sub>o</sub> : 24 µF	L <sub>o</sub> : 18 mH

### SPECIFIC CONDITIONS OF USE (CONTINUED)

- f) Electrical parameters of connectors from another intrinsically safe certified equipment or sensor that can be connected to the connectors of EK280:

Connectors of EK280	Electrical parameters of connectors from another intrinsically safe certified equipment or sensor				
Uext	$U_o \leq 30 \text{ V}$	$I_o \leq 140 \text{ mA}$	$P_o \leq 0.5 \text{ W}$	$C_o - C_{c \max} \geq 0$	$L_o - L_{c \max} \geq 0$
DA1, DA2, DA3, DA4	$U_o \leq 30 \text{ V}$	$I_o \leq 140 \text{ mA}$	$P_o \leq 0.5 \text{ W}$	$C_o - C_{c \max} \geq 13.2 \text{ nF}$	$L_o - L_{c \max} \geq 6 \mu\text{H}$
DCD RxD	$U_o \leq 30 \text{ V}$	$I_o \leq 140 \text{ mA}$	$P_o \leq 0.5 \text{ W}$	$C_o - C_{c \max} \geq 0$	$L_o - L_{c \max} \geq 0$
RI	$U_o \leq 30 \text{ V}$	$I_o \leq 140 \text{ mA}$	$P_o \leq 0.5 \text{ W}$	$C_o - C_{c \max} \geq 8.9 \text{ nF}$	$L_o - L_{c \max} \geq 0$
DE1, DE2	$U_i \geq 9.7 \text{ V}$	$I_i \geq 19.7 \text{ mA}$	$P_i \geq 48 \text{ mW}$	$C_i + C_{c \max} \leq 24 \mu\text{F}$	$L_i + L_{c \max} \leq 367 \text{ mH}$
DE3, DE4	$U_i \geq 9.7 \text{ V}$	$I_i \geq 21 \text{ mA}$	$P_i \geq 51 \text{ mW}$	$C_i + C_{c \max} \leq 24 \mu\text{F}$	$L_i + L_{c \max} \leq 322 \text{ mH}$
DE5, DE6	$U_i \geq 9.7 \text{ V}$	$I_i \geq 1.0 \text{ mA}$	$P_i \geq 2.4 \text{ mW}$	$C_i + C_{c \max} \leq 24 \mu\text{F}$	$L_i + L_{c \max} \leq 142 \text{ H}$
DTR TxD	$U_i \geq 9.7 \text{ V}$	$I_i \geq 87 \text{ mA}$	$P_i \geq 211 \text{ mW}$	$C_i + C_{c \max} \leq 24 \mu\text{F}$	$L_i + L_{c \max} \leq 18 \text{ mH}$

$C_{c \max}$ ,  $L_{c \max}$ : maximum value of capacitance and inductance of the connected cable between EK280 and intrinsically safe certified equipment.

- g) The equipment housing contains more than 10% in total of aluminium. It must be mounted in such a manner as to eliminate the risk of sparks caused by friction or impact.