



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 PTB 07.0004	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 2	Issue 1 (2011-02-28) Issue 0 (2007-01-26)
Date of Issue:	2020-11-23		
Applicant:	ifm electronic gmbh Friedrichstrasse 1 45128 Essen Germany formerly Teichstraße 4 45127 Essen Germany Germany		
Equipment:	Flow analyzing electronic assembly, type VS2000 Exi		
Optional accessory:	order No.: SN2301, SN2302 and SR2301		
Type of Protection:	Intrinsic Safety "i"		
Marking:	[Ex ia Ga] IIC		

Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. F. Lienesch

Position:

**Department Head "Explosion Protection in Sensor Technology
and Instrumentation"**

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
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Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany





IECEx Certificate of Conformity

Certificate No.: **IECEx PTB 07.0004**

Page 2 of 4

Date of issue: 2020-11-23

Issue No: 2

Manufacturer: **ifm ecomatic gmbh**
Im Heidach 18
88079 Kressbronn
Germany

Additional
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:

[DE/PTB/ExTR11.0034/01](#)

Quality Assessment Report:

[DE/BVS/QAR06.0010/10](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx PTB 07.0004**

Page 3 of 4

Date of issue: 2020-11-23

Issue No: 2

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The analyzing electronic assembly, type VS2000 Exi order No.: SN2301, SN2302 and SR2301 is used for the operation of 5-wire flow sensors, for the evaluation of electrical signals as well as for the electrical isolation of intrinsically safe and non-intrinsically safe circuits. The maximum permissible ambient temperature is 60 °C.

For electrical data reference is made to the annex to IECEx PTB 07.0004, Issue 02

SPECIFIC CONDITIONS OF USE: NO



IECEx Certificate of Conformity

Certificate No.: **IECEx PTB 07.0004**

Page 4 of 4

Date of issue: 2020-11-23

Issue No: 2

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Adaptation to the current state of standards
- Including of a safety-relevant description regarding the modifications performed
- Update of the operating instructions and the type labels
- Including of a new QAR because several sites of ifm were consolidated in one central QAR

Annex:

[COCA070004-02.pdf](#)



Applicant: ifm electronic gmbh
Electrical Apparatus: Analyzing electronic assembly, type VS2000 Exi
Order-No. SN2301, SN2302 and SR2301

Description of equipment

The analyzing electronic assembly, type VS2000 Exi order No.: SN2301, SN2302 and SR2301 is used for the operation of 5-wire flow sensors, for the evaluation of electrical signals as well as for the electrical isolation of intrinsically safe and non-intrinsically safe circuits.

The maximum permissible ambient temperature is 60 °C.

Electrical data

Supply circuit..... (terminals 17 und 18)	type VS2000 Exi order no.: SN2301 $U = 230 \text{ V}, \pm 10 \%, 47...63 \text{ Hz}$ $U_m = 253 \text{ V AC}$ type VS2000 Exi order no.: SN2302 $U = 110 \text{ V}, \pm 10 \%, 47...63 \text{ Hz}$ $U_m = 121 \text{ V AC}$ type VS2000 Exi order no.: SN2303 $U = 200 \text{ V}, \pm 10 \%, 47...63 \text{ Hz}$ $U_m = 220 \text{ V AC}$ type VS2000 Exi order no.: SN2304 $U = 240 \text{ V}, \pm 10 \%, 47...63 \text{ Hz}$ $U_m = 264 \text{ V AC}$ type VS2000 Exi order no.: SR2301 $U = 24 \text{ V}, \pm 10 \%, \text{ DC}$ $U_m = 26,4 \text{ V DC}$
Flow circuit..... (terminals 13, 14 and 15)	Switching contacts up to 250 V AC, up to 4 A, $\cos \varphi \geq 0,7$ up to 250 V DC, up to 0,2 A up to 24 V DC, up to 4 A
Monitoring circuit..... (terminals 19, 20 and 21)	Switching contacts up to 250 V AC, up to 4 A, $\cos \varphi \geq 0,7$ up to 250 V DC, up to 0,2 A up to 24 V DC, up to 4 A



SN2301...2304

Heating and sensor circuit.....type of protection Intrinsic Safety Ex ia IIC / IIB
(terminals 1, 2, 3 and 7, 8) resp. Ex ib IIC / IIB

Maximum values:

$$U_o = 15.8 \text{ V}$$

$$I_o = 92 \text{ mA}$$

$$I_e = 47.2 \text{ mA}$$

$$P_o = 680 \text{ mW}$$

trapezoidal characteristic

$$L_i \approx 0 \text{ H}$$

$$C_i = 63 \text{ nF}$$

The maximum permissible external inductances and capacitances shall be taken from the following table
(C_i is already considered).

Ex ia/ib	IIC	IIB	IIB
L_o	1 mH	1 mH	5 mH
C_o	185 nF	1.6 μ F	885 nF

SR2301

Heating and sensor circuit.....type of protection Intrinsic Safety Ex ia IIC / IIB
(terminals 1, 2, 3 and 7, 8) resp. Ex ib IIC / IIB

Maximum values:

$$U_o = 15.8 \text{ V}$$

$$I_o = 84 \text{ mA}$$

$$I_e = 38.5 \text{ mA}$$

$$P_o = 680 \text{ mW}$$

trapezoidal characteristic

$$L_i \approx 0 \text{ H}$$

$$C_i = 63 \text{ nF}$$

The maximum permissible external inductances and capacitances shall be taken from the following table
(C_i is already considered).

Ex ia/ib	IIC	IIB	IIB
L_o	1 mH	1 mH	5 mH
C_o	205 nF	1.7 μ F	935 nF

The intrinsically safe heating and sensor circuit is safely electrically isolated from all other circuits up to a peak value of the nominal voltage of 375 V.