



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

Certificate No.: IECEx BVS 18.0035X

Issue No: 1

Certificate history:

Status: **Current**

[Issue No. 1 \(2018-07-27\)](#)

[Issue No. 0 \(2018-06-08\)](#)

Date of Issue: **2018-07-27**

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Applicant: **SAMSON AG**
Weismüllerstraße 3
60314 Frankfurt am Main
Germany

Equipment: **Positioner with HART® communication TROVIS 3730-3-...**
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Equipment protection by type of protection "n", Equipment dust ignition protection by enclosure "t"**

Marking:
See Annex

Approved for issue on behalf of the IECEx
Certification Body:

Ralf Leiendecker

Position:

Deputy Head of Certification Body

Signature:
(for printed version)

Date:

27.07.2018

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](#).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Manufacturer: **SAMSON AG**
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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 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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*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:

[DE/BVS/ExTR18.0037/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0011/08](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General product information:

The Positioner with HART® communication TROVIS 3730-3-... is a single acting positioner for attachment to pneumatic control valves. The positioner ensures a predetermined assignment of the valve position (controlled variable x) to the input signal (reference variable w). It compares the input signal received from a control system to the travel or rotational angle of the control valve and issues a corresponding output signal pressure (output variable y) for the pneumatic actuator.

The apparatus consists of an enclosure with several fixed mounted PCBs. In addition to the power supply terminals +11 / -12 the device contains slots for different options modules. The options modules provide additional connection terminals for external circuits. The serial interface (5 pin socket) for performing a firmware update may only be used by the manufacturer.

Depending on the type of the apparatus there are different types of protection:

TROVIS 3730-3-111... has type of protection "ia" and it may be used for applications requiring EPL Gb or Db

TROVIS 3730-3-511... has type of protection "tb" and it may be used for applications requiring EPL Db.

TROVIS 3730-3-811... has type of protection "nA" and "tb" and it may be used for applications requiring EPL Gc or Db.

TROVIS 3730-3-851... has type of protection "nA" and it may be used for applications requiring EPL Gc.

The Options Module Code C includes a Pepperl+Fuchs inductive limit switch type SJ2-SN (Certificate IECEx PTB 11.0092X, standards IEC 60079-0:2011 Ed.6.0, IEC 60079-11:2011 Ed.6.0).

For TROVIS 3730-3-111... (type of protection "ia"), when using the options module Code C: Two different sets of input parameters are permissible (supply variant type 2 and type 3). If the options module is supplied with parameters type 3, the ambient temperature is limited.

Model type code:

See Annex

Ratings:

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

For TROVIS 3730-3-111:

For applications in Dust Group IIIC, the cable glands and blanking plugs supplied must be replaced with certified ones. The cable glands and blanking plugs must be suitable for the corresponding ambient temperatures and have a degree of protection of at least IP54.



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

The type denomination and model code were changed.

Annex:

[BVS_18_0035X_Samson_Annex_Issue1.pdf](#)



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Model type code:

TROVIS 3730-3-*****

a b c d e f g h i j k l m n o p q r s t

a	b	c	Explosion protection
1	1	1	Ex ia IIC T4/T6 Gb / Ex ia IIIC T85°C Db
5	1	1	Ex tb IIIC T85°C Db
8	1	1	Ex nA IIC T4/T6 Gc / Ex tb IIIC T85°C Db
8	5	1	Ex nA IIC T4/T6 Gc
d	Function		
-	Not relevant		
e	Slot A Option		
0	Without		
1	Position transmitter 4 to 20 mA		
2	Binary input 24 V DC		
f	Slot B Option		
0	Without		
1	Position transmitter 4 to 20 mA		
2	Binary input 24 V DC		
3	Forced venting		
g	Slot C Option		
0	Without		
2	Software limit switches + Binary output (NAMUR)		
3	1 x Inductive limit switches + Binary output (NAMUR)		
4	2 x Inductive limit switches + Binary output (NAMUR)		
5	1 x Software limit switches + 1 x Inductive limit switches + Binary output (NAMUR)		
h	Slot D Option		
0	Without		
1	External travel sensor, 1050-0650 housing with M12x1 connector; with 10 m connecting cable		
2	External travel sensor, 1050-0650 housing with M12x1 connector; ready mounted		
3	External travel sensor; 3712 housing with connector; ready mounted		
4	External travel sensor; 3712 housing with connector; with 10 m connecting cable		
5	External travel sensor; 3712 housing with cable gland; ready mounted		
6	External travel sensor; 3712 housing with 10 m connecting cable		
i	Reserved		
-	Not relevant		
j	Reserved		
-	Not relevant		
k	Emergency shutdown		
-	Not relevant		
l	Electrical connection		
0	Without		
1	Two M20x1.5, one plastic cable gland		
2	Two M20x1.5, two metal cable glands		
m	Reserved		
-	Not relevant		
n	Housing material		
0	Aluminium EN AC-44300DF		
1	Stainless steel 1.4408		
o	Cover		
1	With round window		
2	Closed (without window)		
p	q	Housing version	
-	-	Not relevant	
r	Additional approval		
-	Not relevant		
s	Ship approval		
-	Not relevant		
t	Permissible ambient temperature		
-	Not relevant		

- If Slot D option 5 or 6 is configured only Slot A option 0 is permitted.
- For TROVIS 3730-3-511...: For Slot D, only options 0, 5 and 6 are permitted.
- For TROVIS 3730-3-811... and TROVIS 3730-3-851...: For Slot D, only option 0 is permitted.



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Ratings:

1 Electrical Parameters for type of protection "ia"

1.1 Signal Circuit Terminal +11 / -12

Maximum input voltage	U_i	28	V
Maximum input current	I_i	115	mA
Maximum input power	P_i	1	W
Maximum internal capacitance	C_i	14.6	nF
Maximum internal inductance	L_i	negligible	

1.2 Software Limit Switches (NAMUR) Terminals +45 / -46 and +55 / -56

Maximum input voltage	U_i	16	V
Maximum input current	I_i	52	mA
Maximum input power	P_i	169	mW
Maximum internal capacitance	C_i	11.1	nF
Maximum internal inductance	L_i	negligible	

1.3 Binary Output (NAMUR) Terminal +83 / -84

Maximum input voltage	U_i	16	V
Maximum input current	I_i	52	mA
Maximum input power	P_i	169	mW
Maximum internal capacitance	C_i	11.1	nF
Maximum internal inductance	L_i	negligible	

1.4 Binary Input (24 V DC) Terminal +87 / -88

Maximum input voltage	U_i	28	V
Maximum input current	I_i	115	mA
Maximum input power	P_i	1	W
Maximum internal capacitance	C_i	37.1	nF
Maximum internal inductance	L_i	negligible	

1.5 Position Transmitter Terminal +31 / -32

Maximum input voltage	U_i	28	V
Maximum input current	I_i	115	mA
Maximum input power	P_i	1	W
Maximum internal capacitance	C_i	11.1	nF
Maximum internal inductance	L_i	negligible	

1.6 Forced Venting Terminal +81 / -82

Maximum input voltage	U_i	28	V
Maximum input current	I_i	115	mA
Maximum input power	P_i	1	W
Maximum internal capacitance	C_i	11.1	nF
Maximum internal inductance	L_i	negligible	

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1.7 Inductive Limit Switches Terminals +41 / -42 and +51 / -52

		Type 2	Type 3
Maximum input voltage	U_i	16 V	16 V
Maximum input current	I_i	25 mA	52 mA
Maximum input power	P_i	64 mW	169 mW
Maximum internal capacitance	C_i	41.1 nF	41.1 nF
Maximum internal inductance	L_i	100 μ H	100 μ H

2 Electrical Parameters for type of protection "tb" and "nA"

2.1 Signal Circuit Terminal +11 / -12

Nominal input current	I_N	4 ... 20	mA
Nominal input voltage	U_N	9.8	V
Nominal input power	P_N	212	mW

2.2 Software Limit Switches (NAMUR) Terminals +45 / -46 and +55 / -56

Nominal input voltage	U_N	8.2	V
Nominal input power	P_N	17	mW

2.3 Binary Output (NAMUR) Terminal +83 / -84

Nominal input voltage	U_N	8.2	V
Nominal input power	P_N	17	mW

2.4 Binary Input (24 V DC) Terminal +87 / -88

Nominal input voltage	U_N	24	V
Nominal input power	P_N	12	mW

2.5 Position Transmitter Terminal +31 / -32

Nominal input voltage	U_N	24	V
Nominal input power	P_N	518	mW

2.6 Forced Venting Terminal +81 / -82

Nominal input voltage	U_N	24	V
Nominal input power	P_N	173	mW

2.7 Inductive Limit Switches Terminals +41 / -42 and +51 / -52

Nominal input voltage	U_N	8.2	V
Nominal input power	P_N	17	mW



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3 Thermal Parameters

- 3.1 For TROVIS 3730-3-111... Group II application (type of protection "ia")
- | | | |
|-------------------|----|--|
| Temperature Class | T4 | $-40\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$ |
| Temperature Class | T6 | $-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
- Operation with Inductive Limit Switches supply variant type 3
- | | | |
|-------------------|----|--|
| Temperature Class | T4 | $-40\text{ °C} \leq T_{\text{amb}} \leq +70\text{ °C}$ |
| Temperature Class | T6 | $-40\text{ °C} \leq T_{\text{amb}} \leq +45\text{ °C}$ |
- Operation with external position sensor
- | | | |
|-------------------|----|--|
| Temperature Class | T4 | $-30\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$ |
| Temperature Class | T6 | $-30\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
- 3.2 For TROVIS 3730-3-111... Group III application (type of protection "ia")
- | | | |
|-----------------------------|---------|--|
| Maximum surface temperature | T 85 °C | $-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
|-----------------------------|---------|--|
- Operation with external position sensor
- | | | |
|-----------------------------|---------|--|
| Maximum surface temperature | T 85 °C | $-30\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
|-----------------------------|---------|--|
- 3.3 For TROVIS 3730-3-511... and TROVIS 3730-3-811... and TROVIS 3730-3-851... (type of protection "nA" and "tb")
- | | | |
|-----------------------------|---------|--|
| Temperature Class | T4 | $-40\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$ |
| Temperature Class | T6 | $-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
| Maximum surface temperature | T 85 °C | $-40\text{ °C} \leq T_{\text{amb}} \leq +70\text{ °C}$ |

Marking

Ex ia IIC T4/T6 Gb Ex ia IIIC T85°C Db	For TROVIS 3730-3-111...
Ex tb IIIC T85°C Db	For TROVIS 3730-3-511...
Ex tb IIIC T85°C Db Ex nA IIC T4/T6 Gc	For TROVIS 3730-3-811...
Ex nA IIC T6 Gc	For TROVIS 3730-3-851...