



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.: issue No.:

Status:

Date of Issue: **2016-12-07** Page 1 of 4


Applicant: **Samson AG Mess- und Regeltechnik**
 Weismüllerstraße 3
 60314 Frankfurt am Main
 Germany

Equipment: **Positioner type TROVIS / TROVIS SAFE 3793 - **1... HART®**
 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: Ex ia IIC T4/T6 Gb for type 3793-111
 Ex ia IIIC T85°C Db
 Ex tb IIIC T85°C Db for type 3793-511
 Ex nA IIC T4/T6 Gc for type 3793-811
 Ex tb IIIC T85°C Db
 Ex nA IIC T4/T6 Gc for type 3793-851

Approved for issue on behalf of the IECEx Certification Body: **Dr. F. Eickhoff**
 Position: Deputy Head of Certification Body

Signature: *(for printed version)* 
 Date: 2016-12-07

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:

DEKRA EXAM GmbH
 Dinnendahlstrasse 9
 44809 Bochum
 Germany





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Manufacturer: **Samson AG Mess- und Regeltechnik**
Weismüllerstraße 3
60314 Frankfurt
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 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"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-31 : 2013 Edition: 2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*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/ExTR16.0084/00](#)

Quality Assessment Report:

[DE/TUN/QAR06.0011/06](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Type code:

See Annex

Ratings:

See Annex

SPECIFIC CONDITIONS OF USE: NO



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EQUIPMENT(continued):

The TROVIS/TROVIS SAFE 3793 HART® Positioner is a single or double 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 degree of protection IP66 and contains several fixed mounted PCBs. In addition to the power supply terminals +11 / -12 the device contains two 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:

Type 3793 - 111... has type of protection 'ia' and it may be used for EPL Gb and Db (Zone 1 and Zone 21).

Type 3793 - 511... has type of protection 'tb' and it may be used for EPL Db (Zone 21).

Type 3793 - 811... has type of protection 'nA' and 'tb' and it may be used for EPL Gc and Db (Zone 2 and Zone 21).

Type 3793 - 851... has type of protection 'nA' and it may be used for EPL Gc (Zone 2).

The options modules are exchangeable.

The type of protection of the apparatus shall be marked on the type label of the options modules. It is not allowed to use an options module with type of protection 'ia', if it has ever been supplied with a non-intrinsically safe circuit.

Options module Code P includes a Pepperl+Fuchs inductive limit switch type SJ2-SN which is separately certified (Certificate IECEx PTB 11.0092X).

For types 3793 - 111... (type of protection 'ia'), when using the options module Code P:

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. Refer to thermal ratings.



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Type code:

Positioner TROVIS / TROVIS SAFE 3793 HART®

3 7 9 3 – b c d e f g h i j k l m n o p q

b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

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

b c d

| **Function** (not safety relevant)

e

| **Pneumatics** (not safety relevant)

f g

Option module 1

0	0	Without
1	0	with Software Limit Switches, Binary Input and Output (Code N)
4	0	with Position Transmitter Binary Input and Output (Code T)
8	0	with Forced Venting, Binary Input and Output (Code V)

h i

Option module 2

0	0	Without
1	0	with Software Limit Switches, Binary Input and Output (Code N)
4	0	with Position Transmitter, Binary Input and Output (Code T)
8	0	with Forced Venting, Binary Input and Output (Code V)
1	5	with Inductive Limit Switches (NC) and Binary Output (Code P)
1	6	with Inductive Limit Switches (NO) and Binary Output (Code P)
3	0	with Mechanical Limit Switches (NO/NC)

j k

Pressure sensor

0	Without
1	with Pressure Sensors for p_zul, Y1 and Y2

l

Electrical connections

0	4 blanking plugs
1	1 cable gland, 3 blanking plugs

m

Housing material

0	Standard aluminum die cast
1	Stainless steel

n

| **Special applications** (not safety relevant)

o

| **Additional approvals** (not safety relevant)

p

| **Ambient temperature** (not safety relevant)

q



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Ratings:

1. Electrical data:

1.1 Signal Circuit Terminal +11 / -12

Nominal input current	I_N	4 ... 20	mA
Nominal input power	P_N	212	mW
For types 3793 - 111...			
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	16.3	nF
Maximum internal inductance	L_i	negligible	

1.2 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
For types 3793 - 111...			
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	12.2	nF
Maximum internal inductance	L_i	negligible	

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

Nominal input voltage	U_N	8.2	V
Nominal input power	P_N	17	mW
For types 3793 - 111...			
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	12.2	nF
Maximum internal inductance	L_i	negligible	

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

Nominal input voltage	U_N	24	V
Nominal input power	P_N	120	mW
For types 3793 - 111...			
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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1.5 Position Transmitter Terminal +31 / -32

Nominal input voltage	U_N	24	V
Nominal input power	P_N	518	mW
For types 3793 - 111...			
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

Nominal input voltage	U_N	24	V
Nominal input power	P_N	173	mW
For types 3793 - 111...			
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	

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

Nominal input voltage	U_N	8.2	V
Nominal input power	P_N	17	mW
For types 3793 - 111...			
Supply variant		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		71.1 nF
Maximum internal inductance	L_i		100 μ H

1.8 Mechanical Limit Switches Terminals 47 / 48 / 49 and 57 / 58 / 59

Nominal input voltage	U_N	28	V
Nominal input power	P_N	10	mW
For types 3793 - 111...			
Maximum input voltage	U_i	28	V
Maximum input current	I_i	115	mA
Maximum input power	P_i	500	mW
Maximum internal capacitance	C_i	22.2	nF
Maximum internal inductance	L_i	150	μ H



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2. Thermal Parameters:

- 2.1 Types 3793 - 111... Group II applications (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 | $-40\text{ °C} \leq T_{\text{amb}} \leq +45\text{ °C}$ |
- 2.2 Types 3793 - 111... Group III applications (type of protection ia)
- | | | |
|-----------------------------|---------|--|
| Maximum surface temperature | T 85 °C | $-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
|-----------------------------|---------|--|
- 2.3 Types 3793 - 811... and types 3793 - 851... (type of protection nA)
- | | | |
|-------------------|----|--|
| Temperature Class | T4 | $-40\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$ |
| Temperature Class | T6 | $-40\text{ °C} \leq T_{\text{amb}} \leq +55\text{ °C}$ |
- 2.4 Types 3793 - 511... and types 3793 - 811... (type of protection tb)
- | | | |
|-----------------------------|---------|--|
| Maximum surface temperature | T 85 °C | $-40\text{ °C} \leq T_{\text{amb}} \leq +70\text{ °C}$ |
|-----------------------------|---------|--|