



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 PTB 05.0008X Issue No: 1 Certificate history:
Status: Current Page 1 of 5 Issue No. 1 (2016-11-30)
Date of Issue: 2016-11-30 Issue No. 0 (2005-02-21)
Applicant: SAMSON AG Mess- und Regeltechnik
Weismuellerstrasse 3
D-60314 Frankfurt am Main
Germany
Equipment: HART capable positioner type 3730-31..., 3730-35.. and 3730-38..
Optional accessory:
Type of Protection: General Requirements, Intrinsic Safety, Type of Protection "n", Dust Ignition Protection by Enclosure
Marking:
Ex ia IIC T6...T4 Gb and Ex ia IIIC T80°C Db or
Ex tb IIIC T80°C Db or
Ex nA IIC T6 Gc and Ex tc IIIC T80°C Dc

Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. Frank Lienesch

Position:

Department Head "Explosion Protection in Sensor Technology and
Instrumentation"

Signature:
(for printed version)

Date:

14.12.16

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:

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





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Manufacturer: **SAMSON AG Mess- und Regeltechnik**
Weismuellerstrasse 3
D-60314 Frankfurt am Main
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/PTB/ExTR16.0043/00](#)

Quality Assessment Report:

[DE/TUN/QAR06.0011/07](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General description

The Model 3730-3... HART® capable positioner is a single- or double-acting positioner with communication capability intended for the attachment to pneumatic control valves or rotary actuators. The positioner is of a self-balancing type and adapts itself automatically to the attached valve or actuator respectively. The positioner server matches valve stem positions with the control signal in the 4-20mA range. Nominal travels of 3.6 to 200 mm are possible with linear actuators, or angles of rotation of 24 ° to 100 ° with rotary actuators.

Options:

Position indicator, software proximity switch, inductive proximity switch, forced routing function, fault alarm output, external displacement transducer and serial interface.

CONDITIONS OF CERTIFICATION: YES as shown below:

For specific conditions of use reference is made to the attachment.



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

The changes concern the

- update of the applied Standards
- application of alternative gasket material of the enclosure
- adding of an enclosure with windows
- increase of the internal capacitance of the inductive limit contact (terminals 41/42) to $C_j = 60 \text{ nF}$ (type 3730-31)
- adding of a type notation for dust ignition protection by enclosure for EPL Db (type 3730-35)
- implementation of dust ignition protection by Intrinsic Safety for EPL Db (type 3730-31)
- implementation of dust ignition protection by enclosure for EPL Dc (type 3730-38)
- implementation of type of protection "nA" for EPL Gc (type 3730-38)
- adding of specific conditions of use for type of protection "nA" (type 3730-38).



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Additional information:

For thermal and electrical specifications reference is made to the attachment.

Annex:

[Attachment IECEx PTB 05.0008-01_v3-2.pdf](#)



Applicant: **SAMSON AG Mess- und Regeltechnik**
Weismuellerstrasse 3
60314 Frankfurt am Main
Germany

Electrical Apparatus: HART capable positioner
Type 3730-31.., 3730-35.. and 3730-38..

Electrical and thermal data for type 3730-31:

For relationship between temperature class and permissible ranges of the ambient temperature, reference is made to the following table:

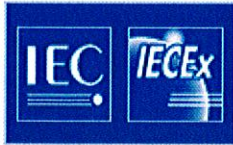
Gas- or dust group	Temperature class	Permissible range of the ambient temperature
IIC	T6	-55 °C ... 60 °C
	T5	-55 °C ... 70 °C
	T4	-55 °C ... 80 °C
IIIC	Not applicable	-55 °C ... 80 °C

The relationship between temperature class, the permissible range of the ambient temperature and the maximum short circuit currents for analyzing units with limit contact (terminals 41/42) applies according to the following table:

Temperature class	Permissible range of the ambient temperature	I_0 / P_0
T6	-55 °C ... 45 °C	52 mA / 169 mW
T5	-55 °C ... 60 °C	
T4	-55 °C ... 75 °C	
T6	-55 °C ... 60 °C	25 mA / 64 mW
T5	-55 °C ... 80 °C	
T4	-55 °C ... 80 °C	

Electrical data

Signal circuit..... type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 11/12) only for connection to a certified intrinsically
safe circuit
Maximum values:
 $U_i = 28 \text{ V}$
 $I_i = 115 \text{ mA}$



$P_i = 1 \text{ W}$
 L_i negligibly low
 $C_i = 35 \text{ nF}$

Position indicator type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 31/32) only for connection to a certified intrinsically
safe circuit

Maximum values:

$U_i = 28 \text{ V}$
 $I_i = 115 \text{ mA}$
 $P_i = 1 \text{ W}$

L_i negligibly low
 $C_i = 5.3 \text{ nF}$

Type 3730-31.....1 type of protection Intrinsic Safety Ex ia IIC/IIIC
(Structure-borne sound sensor) only for connection to a certified intrinsically
safe circuit

Sensor connection
(terminals 31/32)

Maximum values:

$U_i = 30 \text{ V}$
 $I_i = 100 \text{ mA}$

L_i negligibly low
 $C_i = 5.3 \text{ nF}$

Type 3730-31.....1 type of protection Intrinsic Safety Ex ia IIC/IIIC
(Binary sensor) only for connection to a certified intrinsically
safe circuit

Maximum values:

$U_i = 30 \text{ V}$
 $I_i = 100 \text{ mA}$
 $P_i = 250 \text{ mW}$

L_i negligibly low
 $C_i = 56.3 \text{ nF}$

Limit contacts, software type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 41/42, 51/52) only for connection to a certified intrinsically
safe circuit

Maximum values:



$U_i = 20 \text{ V}$
 $I_i = 60 \text{ mA}$
 $P_i = 250 \text{ mW}$
 L_i negligibly low
 $C_i = 5.3 \text{ nF}$

Limit contact, inductive type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 41/42) only for connection to a certified intrinsically
safe circuit

Maximum values:

$U_i = 16 \text{ V}$
 $I_i = 52 \text{ mA}$
 $P_i = 169 \text{ mW}$
 $L_i = 100 \text{ } \mu\text{H}$
 $C_i = 60 \text{ nF}$

or

$U_i = 16 \text{ V}$
 $I_i = 25 \text{ mA}$
 $P_i = 64 \text{ mW}$
 $L_i = 100 \text{ } \mu\text{H}$
 $C_i = 60 \text{ nF}$

Forced venting type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 81/82) only for connection to a certified intrinsically
safe circuit

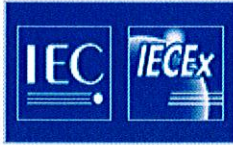
Maximum values:

$U_i = 28 \text{ V}$
 $I_i = 115 \text{ mA}$
 L_i negligibly low
 $C_i = 5.3 \text{ nF}$

Fault signal output type of protection Intrinsic Safety Ex ia IIC/IIIC
(terminals 83/84) only for connection to a certified intrinsically
safe circuit

Maximum values:

$U_i = 20 \text{ V}$
 $I_i = 60 \text{ mA}$
 $P_i = 250 \text{ mW}$
 L_i negligibly low
 $C_i = 5.3 \text{ nF}$



Serial Interface type of protection Intrinsic Safety Ex ia IIC/IIIC
(Programming socket)

Maximum values:

$U_o = 7.88 \text{ V}$
 $I_o = 61.8 \text{ mA}$
 $P_o = 120 \text{ mW}$
linear characteristic

$L_o = 10 \text{ mH}$
 $C_o = 0.65 \text{ }\mu\text{F}$

or

only for connection to a certified intrinsically
safe circuit

Maximum values:

$U_i = 16 \text{ V}$
 $I_i = 25 \text{ mA}$
 $P_i = 64 \text{ mW}$

L_i negligibly low
 C_i negligibly low

External position sensor type of protection Intrinsic Safety Ex ia IIC/IIIC
(Analog-PCB, pins p9, p10, p11)

Maximum values:

$U_o = 7.88 \text{ V}$
 $I_o = 61 \text{ mA}$
 $P_o = 120 \text{ mW}$
linear characteristic

$L_o = 10 \text{ mH}$
 $C_o = 0.66 \text{ }\mu\text{F}$

$L_i = 370 \text{ }\mu\text{H}$
 $C_i = 730 \text{ nF}$

When intrinsically safe circuits are interconnected the rules for the interconnection of intrinsically safe circuits shall be observed.

Electrical and thermal data for type 3730-35 and 3730-38:

For relationship between temperature class and permissible ranges of the ambient temperature, reference is made to the following table:



Gas- or dust group	Temperature class	Permissible range of the ambient temperature
IIC	T6	-55 °C ... 60 °C
	T5	-55 °C ... 70 °C
	T4	-55 °C ... 80 °C
IIIC	Not applicable	-55 °C ... 80 °C

Electrical data

Signal circuit.....	Rated Voltage:	28 V
(Terminals 11/12)	Nominal signal:	4 ... 20 mA
Position indicator	Rated Voltage:	28 V
(Terminals 31/32)	Output signal:	4 ... 20 mA
Sensor connection (Leakage-Sensor)	Rated Voltage:	30 V
(Terminals 31/32)	inner capacitance	1,4 nF
Binary input	Rated Voltage:	30 V
(Terminals 31/32)	Nominal signal:	6 ... 30 V DC
Limit contact, inductive	Rated Voltage:	16 V
(Terminals 41/42)	Nominal signal:	8 V DC, 8 mA
Limit contacts, software	Rated Voltage:	20 V
(Terminals 41/42)	Nominal signal:	8 V DC, 8 mA
Forced venting	Rated Voltage:	28 V
(Terminals 81/82)	Nominal signal:	6 ... 24 V DC
Fault signal output	Rated Voltage:	20 V
(Terminals 83/84)	Nominal signal:	8 V DC, 8 mA

Specific conditions of use:

For the HART capable positioner **type 3730-38** in type of protection "nA" the following applies:

1. A fuse according to IEC 60127-2/II, 250 V F respectively IEC 60127-2/VI, 250 V T with a maximum nominal fuse current of $I_N \leq 63$ mA shall be connected in series to the signal circuit (terminals 11/12).
2. The position indicator circuit shall be connected to a fuse according to IEC 60127-2/VI, 250 V T with a maximum nominal fuse current of $I_N \leq 40$ mA in series. This fuse shall be arranged outside of the hazardous area.



3. A fuse according to IEC 60127-2/II, 250 V F respectively IEC 60127-2/VI, 250 V T with a maximum nominal fuse current of $I_N \leq 40$ mA shall be connected in series to the program interface adapter in the connection of Vcc.
4. The program interface adapter shall be arranged outside the hazardous area.
5. The connection of the wires has to be made in a way that the connection is free of tensile and torsional stress.