CERTIFICATE OF CONFORMITY

1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** **FM21CA0063**
3. **Equipment:** **Type 3730-1 series TROVIS HART Positioner**
   (Type Reference and Name)
4. **Name of Listing Company:** **Samson AG**
5. **Address of Listing Company:** **Weismuellerstrasse 3**
   Postfach 101901
   Frankfurt D60314
   Germany
6. The examination and test results are recorded in confidential report number:

   PR459607 dated 18th October 2022
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   CAN/CSA C22.2 No. 94:R2011, CAN/CSA-C22.2 No. 213:2017, CAN/CSA-C22.2 No. 60079-0:2019, CAN/CSA-C22.2 No. 60079-11:2014, CAN/CSA C22.2 No. 60079-31:2015, CAN/CSA-C22.2 No. 60529:2016, CAN/CSA-C22.2 No. 61010-1:2012
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

18 October 2022
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Intrinsically Safe for Class I, II, III Division 1, Groups A, B, C, D, E, F, and G hazardous (classified) locations in accordance with drawing EB 8484-1 , Intrinsically Safe for Class I, Zone 1, Group IIC hazardous (classified) locations in accordance with drawing EB 8484-1; Nonincendive for Class I, II, III Division 2, Groups A, B, C, D, F, and G hazardous locations, indoors and outdoors (Type 4X, IP66) with an ambient temperature rating per the table in Section 12 below

11. The marking of the equipment shall include:

IS Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T* Ta*

Ex ia IIC T* Gb

NI Class I, II, III Division 2, Groups A, B, C, D, F, G; T* Ta*

Type 4X; IP66

For Entity and NIFW parameters – refer to document no. EB8484-1

T* - See below

12. **Description of Equipment:**

General – The TROVIS 3730-1 Positioner is a single acting positioner for attachment to pneumatic control valves. The positioner mainly consists of a non-contact travel sensor system, an i/p converter and the electronics with the microcontroller. The valve position is transmitted either as an angle of rotation or a travel to the pick-up lever, from there to the travel sensor and forwarded to the microcontroller. The PID algorithm in the microcontroller compares the valve position measured by the travel sensor to the 4 to 20 mA DC control signal issued by the control system after it has been converted by the AD converter. In case of a set point deviation, the i/p converter causes the actuator to be either vented or filled with air. As a result, the closure member of the valve is moved to the position determined by the reference variable. The pneumatic module is supplied with supply air and the flow rate of the module's output can be restricted by software

Construction - The Type TROVIS 3730-1 Positioner mainly consists of the electronics part. The parts are assembled in an enclosure made of aluminium die cast or stainless-steel die cast. The enclosure has a cover with a polymeric inspection window. As an alternative to the polymeric material, the window can be made from aluminium. The enclosure has an ingress protection rating of Type 4X and IP66

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Thermal Ratings:

The correlation between temperature class and permissible ambient temperature range T_a is shown in Table 2.

Table 2:

Temperature class	Permissible ambient temperature T_a
T4	-40 °C ≤ T_a ≤ + 80 °C
T6	-40 °C ≤ T_a ≤ + 55 °C

For operation with inductive limit switches used with I_{max}/I_i = 52 mA and Pi = 169 mW, the correlation between temperature class and permissible ambient temperature range is shown in Table 3.

Table 3:

Temperature class	Permissible ambient temperature T_a
T4	-40 °C ≤ T_a ≤ + 70 °C
T6	-40 °C ≤ T_a ≤ + 45 °C

Electrical Ratings:

Circuit	Signal circuit	Position transmitter	Inductive limit switches	Software limit switches
Circuit no.	1	2	3 and 4	5 and 6
Terminal no.	+11 / -12	+31 / -32	+41 / -42 and +51 / -52	+45 / -46 and +55 / -56
V_{max} or U_i	28 V	28 V	16 V	16 V
I_{max} or I_i	115 mA	115 mA	25 mA or 52 mA	52 mA
P_i	1 W	1 W	64 mW or 169 mW	169 mW
C_i	16.3 nF	11.1 nF	71.1 nF	12.2 nF
L_i	Negligible	Negligible	100 µH	Negligible
Rated values	I_N = 4 mA…20 mA	U_N = 24 V DC	* U_N = 8.2 V R_i = 1 kΩ	* U_N = 8.2 V R_i = 1 kΩ

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Positioner TROVIS / 3730-1…HART
3730-1-1300efghijklmno

e = Slot B Options: 0, or 1
f = Slot C Options: 0, 2, 3 or 4
g = reserved: not safety relevant
h = Electrical connection: 0 or 1
i = Housing material: 0 or 1
j = Cover: 1 or 2
kl = Housing version: not safety relevant
m = Additional Approval: not safety relevant
n = Ship Approval: not safety relevant
o = Permissible ambient temperature: not safety relevant

13. **Specific Conditions of Use:**

None

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
18th October 2022	Original Issue.