

CERTIFICATE OF CONFORMITY


Member of the FM Global Group

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM22US0015**
3. **Equipment:** **Digital Positioner 8049-ExPro-FM**
Digital Positioner
4. **Name of Listing Company:** **Schubert & Salzer Control Systems GmbH.**
5. **Address of Listing Company:** **Bunsenstrasse 38**
Ingolstadt
85053
Germany
6. The examination and test results are recorded in confidential report number:

PR452173 dated 13th January 2023
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2022, FM Class 3610:2021, FM Class 3611:2021, FM Class 3810:2021,
ANSI/UL 60079-0:2019, ANSI/UL 60079-11:2014, ANSI/UL 61010:2017, ANSI/IEC 60529:2013
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.
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.

Certificate issued by:



J/E. Marquedant
VP, Manager - Electrical Systems

15 August 2023
Date

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

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FM Approvals LLC: 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

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10. Equipment Ratings:

Intrinsically Safe apparatus for use in Class I, Division 1, Groups A, B, C, and D, T4 hazardous (classified) locations in accordance with drawing R0293 ; Intrinsically Safe apparatus for Zone 0, Ex ia IIC T4 in accordance with drawing R0293; Nonincendive Electrical Apparatus with nonincendive field wiring suitable for use in Class I, Division 2 Groups A, B, C, and D hazardous (classified) locations in accordance with installation drawing R0293; Ambient temperature range is -10°C to 75°C with ingress protection IP65.

11. The marking of the equipment shall include:

Class I Division 1, Groups A, B, C, D; T4 Ta = -10°C to +75°C; Entity
 Class I Zone 0 AEx ia IIC T4 Ta = -10°C to +75°C; Entity
 Class I Division 2, Groups A, B, C, D; T4 Ta = -10°C to +75°C ; NIFW
 IP65

12. Description of Equipment:

General -

IDigital Positioner 8049-ExPro-FM abc

- a = Electrical connections 7, or 8
- b = Stroke acquisition 1, 2, 3, or 4
- c = Option module 0, or 4

The Digital Positioner Type 8049-ExPro is a control device to position pneumatically controlled actuators. It is suitable for installation on linear and turn actuators.

The mechanical stroke of the valve is converted into an electrical signal using the conductive plastic potentiometer in the position sensor. The control PCB is screwed permanently to the body mid-section. Pneumatic control of the valve actuator is provided by two pneumatic valves which control the supply and evacuation of compressed air to the actuator. The electrical control of the pneumatic valve is provided by a piezo element (piezo "pill").

The device may be supplied by Intrinsically Safe barriers or Non-Incendive Field Wiring only as specified in Control Drawing R0293.

The digital positioner receives a set point signal (4 – 20mA) from a PLC or controller and converts it into a set value for the valve travel proportional to the set point signal. The stroke movement of the valve actuator is achieved by the switching of the positioner actuating elements (piezo-operated valves). One piezo valve switches the operating pressure of the pneumatic supply to the actuator to fill it. The other piezo valve connects the actuator to exhaust and drains it. By using mechanical feedback from the valve stroke, the positioner can react very quickly to changes in the stroke. The digital positioner can be equipped with an additional extension module "Feedback module" with 4-20 mA feedback output and two NAMUR (EN 60947-5-6) limit switches.

Construction - The enclosure provides degree of protection IP65. Inside of the enclosure connection terminals, a computer interface, three push-buttons and a display can be found. The main PCB is mostly coated and contains the stacked power supply PCB which is encapsulated. The main PCB is connected with ribbon cables to the filter module and stroke sensor. The top of the enclosure contains the optional feedback module RM4 with connection

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terminals. It is connected with a ribbon cable to the main PCB, too. The models FM approved have a stainless-steel "lower body section".

Ratings –

Operation Temperature Ranges:

The ambient operating temperature range of the Digital Positioner Type 8049-ExPro is -10°C to 75°C with a T-class of T4.

Electrical Data:

The Digital Positioner 8049-ExPro-FM has the following electrical ratings;

Entity Parameters/NIFW

| Pin #s | Name/ Remark | U _i | I _i | P _i | C _i | L _i |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|
| 1, 2 | Input Signal | 30V | 120mA | 1W | 0µF | 0 µH |
| 3, 4 | Alarm Output | 16V | 25mA | 64mW | 11nF | 0 µH |
| 5, 6 | Binary Input | 5.4V | 1mA | 2mW | 65µF | 50mH |

Type 8049-ExPro-FM**4 (only) (with Feedback-Module)

| Pin #s | Name/ Remark | U _i | I _i | P _i | C _i | L _i |
|--------|---------------|----------------|----------------|----------------|----------------|----------------|
| 10, 11 | Feedback Loop | 30V | 120mA | 1W | 0µF | 0 µH |
| 12, 13 | Switch High | 16V | 25mA | 64mW | 11nF | 0 µH |
| 14, 15 | Switch Low | 16V | 25mA | 64mW | 11nF | 0 µH |

Type 8049-ExPro-FM*3* (only) External Positioning Potentiometer Circuit

| Pin #s | Name/ Remark | U _o | I _o | P _o | C _o | L _o |
|--------|--------------|----------------|----------------|----------------|----------------|----------------|
| 1...8 | Plug 4 | 5.4V | 66mA | 89mW | 61µF | 8mH |

Ingress protection rating:
IP65

13. **Specific Conditions of Use:**

None

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

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

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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 |
|-------------------------------|---|
| 13 th January 2023 | Original Issue. |
| 15 August 2023 | Supplement 1: Report Reference: – RR238017 dated 15 August 2023. Description of the Change: Correct minor typo. The "-" (minus) was missing before 10°C in the Division 2 line (3 rd line) of the marking section 11. |

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