CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM21US0047X**
3. **Equipment:** **ARCASMART 826**
   (Type Reference and Name) **Electropneumatic Positioner**
4. **Name of Listing Company:** **ARCA Regler GmbH**
5. **Address of Listing Company:** **Kempener Str. 18**
   Tonisvorst 47918
   Germany
6. The examination and test results are recorded in confidential report number:

   PR460001 dated 4th June 2021

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

   FM Class 3600:2018, FM Class 3610:2018, FM Class 3611:2018, FM Class 3616:2011, FM Class 3810:2018, ANSI/UL 121201:2017; ANSI/ISA 60079-0:2019, ANSI/UL 60079-7:2017, ANSI/ISA 60079-11:2018, ANSI/UL 60079-31:2015, ANSI/ISA 61010-1:2012, ANSI/UL 50E:2015, ANSI/IEC 60529:2004

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

4 June 2021
Date

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

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10. Equipment Ratings :Electro pneumatic positioner ARCASMART 826

1	2	3	-	4	5	6	-	7	8	9	-	10	_	11
826	a	b	-	c	d	e	-	f	g	0	-	h	-	i

826ab-cde-fg0-h-i (f = K, M and a = X)
Intrinsically Safe for Class I, Zone 1, AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677; and Intrinsically Safe for Class I, Division 1, 2 Groups A, B, C, and D, T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677.

826ab-cde-fg0-h-i (f = M and a = S)
Intrinsically Safe for Class I, Zone 1, AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677; Increased Safety for Class I, Zone 2, AEx ec IIC T4 Gc, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677; and Intrinsically Safe for Class I, Division 1, 2 Groups A, B, C, and D, T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677. Nonincendive for Class I, Division 2, Groups A, B, C, and D T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677.

826ab-cde-fg0-h-i (f = M and a = D)
Intrinsically Safe for Class I, Zone 1, AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677; Increased Safety for Class I, Zone 2, AEx ec IIC T4 Gc, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677; and Intrinsically Safe for Class I, Division 1, 2 Groups A, B, C, and D, T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677. Nonincendive for Class I, Division 2, Groups A, B, C, and D T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations in accordance with drawing DA1-374677. Protection by Enclosure for Zone 21, AEx tb IIIC T100°C Db T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations; as Dust-ignitionproof for Class II, III, Division 1, Groups E, F, and G, T4, -20°C ≤ Ta ≤ +80°C hazardous (classified) locations;

11. The marking of the equipment shall include:

1	2	3	-	4	5	6	-	7	8	9	-	10	_	11
826	a	b	-	c	d	e	-	f	g	0	-	h	-	i

826ab-cde-fg0-h-i (f = K, M and a = X)	AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 IS Cl I, Div 1,2 Gp ABCD T4, -20°C ≤ Ta ≤ +80°C Entity; DA1-374677; Type 4X, IP66
826ab-cde-fg0-h-i (f = M and a = S)	AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 AEx ec IIC T4 Gc, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 IS Cl I Div 1,2 Gp ABCD T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 NI Cl I Div 2 Gp ABCD T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66
826ab-cde-fg0-h-i (f = M and a = D)	AEx ia IIC T4 Gb, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 AEx ec IIC T4 Gc, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66

	IS Cl I Div 1,2 Gp ABCD T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 NI Cl I Div 2 ABCD T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 AEx tb IIIC T100°C Db T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66 DIP Cl II,III Div 1 Gp EFG T4, -20°C ≤ Ta ≤ +80°C; Entity; DA1-374677; Type 4X, IP66

ARCASMART 826, type 826ab-cde-fg0-h-i with types of protection Ex ia/ic and Ex ec	
	Temperature class T4
with the data (f = K, M) and (a = X, S, D)	-20 °C ≤ T_a ≤ +80 °C
ARCASMART 826, type 826ab-cde-fg0-h-i with type of protection Ex tb	
with the data (f = M) and (a = X)	-20 °C ≤ T_a ≤ +80 °C

12. **Description of Equipment:**

General

The ARCASMART 826 electropneumatic positioner is used in the food industry, in the iron and steel industry, in the chemical industry, in refineries and in power plants to regulate the valve or damper position in pneumatic actuators.

TYPE DESIGNATIONS Electro pneumatic Positioners ARCASMART 826:

1	2	3	-	4	5	6	-	7	8	9	-	10	_	11
826	a	b	-	c	d	e	-	f	g	0	-	h	-	i

Illustration type of enclosure	
826 (f=K)	826 (f=M)
Polycarbonate	Aluminum
	

ARCASMART, type 826ab-cde-fg0-h-i			
	Type of explosion protection Index (a)	Type of option Index (i)	
Enclosure material index f=			
K	X	-	or

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M	X, S, D	-	or
Order Codes Index Z=	SE		

** = any character*
Refer to:
Product survey DA1-374635 Rev 00

a= Explosion Protection: E, X, S or D
b= Connection of base device: 2
c= Analogue output: 0 or A
d= Binary output: 0 or B
e= Communication: 0 or H
f= Enclosure material / Cover: M or K
g= Pneumatics: 1 or 2
0= Position detection: 0
h = Connection Thread, electric / pneumatic: G, N, M or P
i = Options: SE, ZD or KA

Construction

- The ARCASMART 826 consists of an enclosure, which is composed of an aluminum base plate and a cover either made of aluminum or transparent polymeric material.
- These enclosures are dust, and waterproof according to the Ingres protection specification IP66 / Type 4X
- The base plate is screwed to the respective cover with 4 captive screws which are located in the corners of the cover.
- A foamed-in captive cord seal consist of silicone is used on the inside of the cover. *Beside to this cord seal, a shaft sealing ring, corresponding cable gland or blind plug with protection degree IP66, duck bill valve inserted in the bottom plate are inherent parts of the sealing concept of the enclosure.*
- On the base plate of the enclosure the piezo-controlled valve, pneumatic connections, feedback shaft, cable glands or blind plugs, sound absorber and the PCBA_carrier which carrier the electronic is assembled.
- The base plate, enclosure cover, and the PCBA_carrier, consists of aluminum chill casting are less than 7.5% in total of magnesium, titanium and zirconium according to IEC60079-0 clause 8.3 for EPL Gb.
- There are two variants of cover of the enclosure system to the Electropneumatic Positioner ARCASMART 826: If the cover is made of transparent polymeric material, then the type designation is 826ab-cde-K. *If the cover is made of aluminum, then the type designation is 826ab-cde-M. In both enclosure cover variants, the internal mechanical structure and the used electronic or pneumatic components are fully identical.*

Ratings - The ARCASMART 826 electro pneumatic positioners operate at 30 Vdc. The Ingress protection type is proved for IP66 and Type 4X.

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1	2	3	-	4	5	6	-	7	8	9	-	10	_	11
826	a	b	-	c	d	e	-	f	g	0	-	h	-	i

Analog Input (AI / HART), control current 4…20 mA

Terminals 6 (+) and 7 (-)

Type of protection: Ex ia
only for the connection to certified intrinsically safe circuits
maximum values

U_i	I_i	P_i	C_i	L_i
30 V	100 mA	750 mW	6 nF	221 µH

Type of protection: Ex ic
only for the connection to certified intrinsically safe circuits
(maximum values)

U_i	I_i		C_i	L_i
30 V	100 mA		6 nF	221 µH

Types of protection: Ex ec and Ex tb
for the connection to circuits with the following
maximum values in normal operation

U_n	I_n
30 V	100 mA

Analog Output (AO) control current 4…20 mA

Terminals 61(+) and 62(-)

galvanically isolated from Analog Input (AI / HART),

Type of protection: Ex ia
only for the connection to certified intrinsically safe circuits (maximum values)

U_i	I_i	P_i	C_i	L_i
30 V	100 mA	750 mW	7 nF	66 µH

Type of protection: Ex ic
only for the connection to certified intrinsically safe circuits (maximum values)

U_i	I_i		C_i	L_i
30 V	100 mA		7 nF	66 µH

Types of protection: Ex ec and Ex tb
for the connection to circuits with the following maximum values in normal operation

U_n	I_n
30 V	100 mA

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13. **Specific Conditions of Use:**

Type of Protection	Specific conditions of use / Schedule of limitations
General Information	The electropneumatic positioner ARCASMART 826 with polymeric lid (f = k) shall be protected against the build-up of electrostatic charges.
	Additionally, conditions of use for installations in the US The process temperature range shall not exceed the respective maximum ambient temperature in hazardous areas like follows: **1** Gas environment: 80°C for T4 **2** Dust environment ignition proof by enclosure: 80°C for T100°C
	The capacitance of the labels exceeds the allowed value of 3 pF. All non-metallic labels may store an electrostatic charge and become a source of ignition in gas and dust environments. Clean with a damp cloth to prevent the buildup of electrostatic charge. Operating instructions in all cases must be observed.
	Approved associated apparatus or approved barrier must be installed in accordance with manufacturer instructions.
	The installation must be in accordance with the National Electrical Code NFPA 70, Article 504, 505, and ANSI/ISA-Rp 12.6.
	The cable shield must be connected to earth potential in accordance with ANSI/ISA-Rp. 12.6.
	Use only supply wires suitable for 20°C above surrounding temperature.
	Limited energy circuits (NI, Ex ic) Class I / Division 2 - Zone 2 application (non-incendive field wiring) Barrier for non-incendive field wiring is required for connection to power supply. Electrical parameters are the same as for intrinsic safety. Without the use of conduit, associated non-incendive Field Wiring Apparatus is required for connection to the power supply.
	Diameter of cable for delivered cable gland is 6 to 12 mm.
	Before commissioning the indications of the protection type which are not being used has to be removed.
	Only certified, intrinsic safety electric circuits must be connected as auxiliary power, control and signal current circuits.

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For Class I / Division 1 - Zone 1 application (IS, Ex i)	Sufficient ventilation for this operating condition must be ensured to avoid a Zone 0 atmosphere around the device. Operating instructions must be adhered to.
	Approved associated apparatus or approved barrier must meet the following requirements: Vo < Vi max. ; Io < Ii max. ; Po < Pi max. ; Co >Ci+Ccable ; Lo >Li+Lcable
	Substitution of components may impair intrinsic safety.
	With type of protection Intrinsic safety (IS), only for connection to certified intrinsic safety circuits
For Class I / Division 2 Zone 2 application / non incendive field wiring) (NI, Ex ic, Ex ec) **For Class II, III / Division 1 - Zone 21 application (DIP, Ex tb)**	No barrier is required for division 2 / zone 2 resp. division 1 / zone 21 installation. Equipment must be wired per the NEC division 2 / zone 2 wiring methods.

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

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

15. **Schedule Drawings**

A copy of thetechnical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
4th June 2021	Original Issue.