

#### **Translation**

# (1) EU-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU** 



(4) for the product: Electropneumatic positioner ARCAPRO type 827A

(5) of the manufacturer: ARCA-REGLER GmbH

(6) Address: Kempener Str. 18

47918 Tönisvorst

Germany

Order number: 8003059502

Date of issue: See signature

- (7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential ATEX Assessment Report No. 23 203 350721.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

#### EN IEC 60079-0:2018/AC:2020-02

except in respect of those requirements listed at item 18 of the schedule.

- (10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

(Ex) II 2 G Ex ia IIC T6...T4 Gb or II 3 G Ex ic IIC T6...T4 Gc

TÜV NORD CERT GmbH, Am TÜV 1, 45307 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

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EN 60079-11:2012



#### (13) SCHEDULE

### (14) EU-Type Examination Certificate TÜV 12 ATEX 085253 X Issue 04

#### (15) **Description of product**

The explosion proof electropneumatic positioner ARCAPRO serves as a coupling assembly between electrical controllers or control devices and pneumatic actuators. Together with the pneumatic actuator, it forms a control loop in which the actual value x is the position of the actuator stem for linear actuators or the position of the actuator shaft for rotary actuators and the reference variable is the control current of a controller or a manual control station from 0/4 to 20 mA. This signal is transmitted analog or via 2- wire HART or PA or FF communication.

From the comparison of the setting and actual value, the microcontroller generates pneumatic actuation increments, which are applied to the drive via piezo-controlled valves. The volume of the drive integrates the setting increments to the signal pressure y, which moves the drive rod or the drive shaft in approximately proportional fashion.

The pneumatic drives are available in single and double-acting versions. In the single-acting version, only one volume is ventilated, and the pressure generated works against a spring. In the double-acting version, two volumes work against each other; when one volume is ventilated, the counter volume is vented.

The basic unit can be output with a position feedback AOM, which means that the manipulated variable y (valve position) is output as current (4-20 mA).

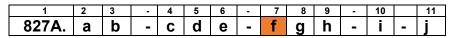
#### Built-in basic electronics and their dependencies on other equipment features

1	2	3	-	4	5	6	•	7	8	9	•	10		11
827A.	а	b	-	С	d	е	•	f	g	h	-	i	-	j

Built-in basic electronics	Dependent on type of explosion protection Index (a)	Dependent on type of basic device connection Index (b)	Dependent on type of communication Index (e)	Dependent on type of options Index (j)	
2-Wire / Ex PCBA-No.: C73451-A430-L250 (ARCA No. 2255289) or PCBA-No.: A5E51252080 (coated version) (ARCA No. 3175367) or PCBA-No.: A5E49830025 (ARCA No. 3175008) or PCBA-No.: A5E52161392 (coated version) (ARCA No. 3182042)	X = Ex i (IS)	2 = 2 wire	0 = Without	If Operation with natural gas <b>NG</b> then <b>a</b> = <b>X</b>	or
2-Wire / HART / Ex PCBA-No.: A5E50576243 (ARCA No. 3175010) or PCBA-No.: A5E52164428 (coated version) (ARCA No. 3182044)	X = Ex i (IS)	2 = 2 wire	H = HART	If Operation with natural gas <b>NG</b> then <b>a</b> = <b>X</b>	or
2-/3-/4-Wire / HART / Ex PCBA-No.: C73451-A430-L200 (ARCA No. 2255288) or PCBA-No.: A5E44298157 (coated version) (ARCA No. 3175363)	X = Ex i (IS)	4 = 2/3/4 wire	H = HART	If Operation with natural gas <b>NG</b> then <b>a</b> = <b>X</b>	or
Profibus (PA) / Ex PCBA-No.: A5E00095037 (ARCA No. 2264815) or PCBA-No.: A5E44541826 (coated version) (ARCA No. 3175364)	X = Ex i (IS)	2 = 2 wire	P = Profibus PA	If Operation with natural gas NG then a = X	or
Foundation Fieldbus (FF) / Ex PCBA-No.: A5E00164801 (ARCA No. 3003862) or PCBA-No.: A5E51252093 (coated version) (ARCA No. 3175369)	X = Ex i (IS)	2 = 2 wire	F = Foundation Fieldbus	If Operation with natural gas NG then a = X	



### **Enclosure types**



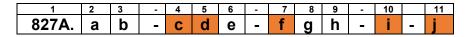
Enclosure type	ARCA Index (f)
Aluminum (SA)	M
Stainless steel	E
Aluminum (SA+DA)	Α

### **Further equipment features**

1	2	3	-	4	5	6	-	7	8	9		10		11
827A.	а	b		C	d	е	•	f	g	h	•	i	-	j

Optional modules installed Index (c)	0, A
Limit monitor installed Index (d)	0, B, S, K, D, I, M
Enclosure Index (f)	M, E, A
Pneumatics Index (g)	1, 2
Position detection Index (h)	0, 1, 2
Connection thread electrical / pneumatic Index (i)	G, N, M, P, R, S
Order Codes Index (j)	FIP, LT, SA, SB, SS, SW, NG, BT

### Type designation, Type code Optional built-in modules



Designation		Type number	Controlled by type code
Binary Module	(DIO)	6DR4004-6A C73451-A430-L2, RS-11/018	Index (d) = B
Digital I/O Module	(DIO-2)	6DR4004-6A A5E52635850, RS-AA/001	Index (d) = D
Slot-type initiator module	(ILS)	6DR4004-6G A5E00068028, RS-04/007	Index (d) = S
Contact module	(ILS-2)	6DR4004-6G A5E52635888, RS-AA/001	Index (d) = I
Mechanic Limit Switches	(MLS)	6DR4004-6K A5E00303739, RS-02/007	Index (d) = K
Mechanic Limit Switches	(MLS-2)	6DR4004-6K A5E52659309, RS-AA/001	Index (d) = M



Designation		Type number	Controlled by type code		
Angles Output Medule	(A O M )	6DR4004-6J A5E52424383, RS-AA/002	Index (a) = A		
Analog Output Module	(AOM)	6DR4004-6J A5E44681475, RS-AA/003	Index (c) = A		
Analog Input Module	(AIM)	6DR4004-6F A5E42389097, RS-AC/003	Index (h) = 2		
Internal NCS module	(iNCS)	6DR4004-5LE A5E35383917, RS-AB/009	Index (h) = 1		

### Maximum permissible ambient temperature ranges ARCAPRO Type 827A

Electropneumatic Positioner ARCAPRO 827A 827A.ab-cde-fgh-i-j with types of protection Ex ia/ic							
	Temperature class T4	Temperature class T6					
No exceptions on the full scope of the Ex-approved equipment features.	-30 °C ≤ Ta ≤ +80 °C	-30 °C ≤ Ta ≤ +50 °C					
with the data (j = LT)	-40 °C ≤ Ta ≤ +80 °C	-40 °C ≤ Ta ≤ +50 °C					
with the data (c = 0) and (h = 2) and T6: (h ≠ 1)	-30 °C ≤ Ta ≤ +80 °C	-30 °C ≤ Ta ≤ +60 °C					
with the data (e ≠ P, F) and (c = 0) and (h = 2) and (j = LT) and T6: (h ≠ 1)	-40 °C ≤ Ta ≤ +80 °C	-40 °C ≤ Ta ≤ +60 °C					



#### Maximum permissible electrical ratings

# Basic electronic, 827A.X2... 2-wire, 4...20 mA, without HART communication Marking on the PCBA: C73451-A430-L250 or A5E49830025 or A5E51252080 (coated version), A5E52161392 (coated version) Auxiliary power supply / control current 4...20 mA • Terminals 6(+) and 7/8(-) if PCBA C73451-A430-L250

or A5E51252080 (coated version) • Terminals 6(+) and 7(-) if PCBA A5E49830025

or A5E52161392 (coated version)

	rotection: lection to cer values:		ically safe c	ircuits.
<i>U</i> i	<b>/</b> i	<b>P</b> i	Ci	<i>L</i> <sub>i</sub>
30 V	100 mA	1 W	11 nF	209 µH
	rotection: lection to intro values:		e circuits.	
<b>U</b> i	<b>/</b> i		<b>C</b> i	<i>L</i> <sub>i</sub>
30 V	100 mA		11 nF	209 µH

#### Digital input galvanically connected to auxiliary power supply / control current

- Terminals 9(+) and 10(-)
- Jumpered or connected to switch contact

Basic electronic 827A.X2-**H 2-wire, 420 mA, HART communication Marking on the PCBA: A5E50576243 or A5E521644.	28 (coated versio	n)			
		orotection: I ection to cert n values:		sically safe c	ircuits.
	<b>U</b> i	<i>l</i> i	<b>P</b> i	Ci	<i>L</i> i
Auxiliary power supply / control current 420 mA	30 V	100 mA	1 W	11 nF	209 µH
• Terminals 6(+) and 7(-)		orotection: lection to intri n values:		fe circuits.	
	<b>U</b> i	<i>I</i> i		Ci	<i>L</i> <sub>i</sub>
	30 V	100 mA		11 nF	209 µH

#### Digital input galvanically connected to auxiliary power supply / control current

- Terminals 9(+) and 10(-)
- · Jumpered or connected to switch contact

#### Basic electronic 827A.X4-\*\*H... 2- / 3- / 4- wire, 4...20 mA, HART communication Marking on the PCBA: C73451-A430-L200 or A5E44298157 (coated version) Type of protection: Ex ia Auxiliary power supply / control current 4...20 mA For connection to certified intrinsically safe circuits. • Jumper between terminal 6 and 4/5 Maximum values: • Control current connection terminals 3(+) and 7/8(-) $P_{i}$ $\boldsymbol{L_i}$ Ui **/**i $C_{i}$ 3/4-wire basic device with HART 30 V 100 mA 1 W 312 µH 11 nF Auxiliary power supply 18...30 V Type of protection: Ex ic • Terminals 2(+) and 4/5(-) For connection to intrinsically safe circuits. Maximum values: Control current 4...20 mA $L_{i}$ $C_i$ • Terminals 6(+) and 7/8(-) • 4-wire: auxiliary power supply and control current electrical 30 V 100 mA 11 nF 312 µH isolated • 3-wire: common base point terminals 4/5 and 7/8 Digital input galvanically connected to auxiliary power supply / control current

- Terminals 9(+) and 10(-)
- Jumpered or connected to switch contact



Basic electronic							
Profibus (PA) communication, 827A.X*-**P	d vorsion)						
marking on the PCBA: A5E00095037, A5E44541826 (coate							
Foundation Fieldbus (FF) communication, 827A.X*-**F marking on the PCBA: A5E00164801, A5E51252093 (coate	d version)						
	Type of protection: Ex ia For supply with a certified FISCO power supply. Maximum values:						
	<i>U</i> i	/i	<b>P</b> i	<b>C</b> i	<b>L</b> i		
	17.5 V	380 mA	5.32 W	(*1	8 µH		
	Type of p For conne Maximum		Ex ia tified intrinsi	cally safe circ	uits.		
	<b>U</b> i	/ <sub>i</sub>	<b>P</b> i	Ci	<i>L</i> <sub>i</sub>		
PA/FF bus circuit	24 V	250 mA	1.2 W	(*1	8 µH		
• Terminals 6(+) and 7(-)		protection: I y with a FIS n values:		upply.			
	<b>U</b> i	<i>l</i> i		<b>C</b> i	<i>L</i> <sub>i</sub>		
	17.5 V	570 mA		(*1	8 µH		
	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:						
	<b>U</b> i			<b>C</b> i	<i>L</i> i		
	32 V			(*1	8 µH		
	Type of protection: Ex ia For connection to certified intrinsically safe circuits. Maximum values:						
Safe input	<i>U</i> i	<i>l</i> i	<b>P</b> i	<b>C</b> i	<b>L</b> i		
• Terminals 81(+) and 82(-)	30 V	100 mA	1 W	(*1	(*1		
Galvanically safe isolated from PA/FF bus circuit and digital input		orotection: lection to intri values:		e circuits.	•		
	<b>U</b> i	<i>l</i> i		Ci	<i>L</i> <sub>i</sub>		
	30 V	100 mA		(*1	(*1		



Divited output sivevite	For connecti	Type of protection: Ex ia For connection to certified intrinsically safe circuits. Maximum values:							
Digital output circuits  Terminals	<b>U</b> i	/i	<b>P</b> i	Ci	<i>L</i> <sub>i</sub>				
31(+) and 32(-)	15 V	25 mA	64 mW	5.2 nF	(*1				
41(+) and 42(-) 51(+) and 52(-) • Galvanically safe isolated from all other circuits	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:							
	<b>U</b> i	<b>/</b> i		Ci	<i>L</i> <sub>i</sub>				
	15 V	25 mA		5.2 nF	(*1				
		Type of protection: Ex ia For connection to certified intrinsically safe circuits.							
Digital input circuits	Or	Or							
<ul> <li>Terminals 11(+) and 12(-)</li> <li>Galvanically safe isolated from all other circuits</li> </ul>		tection: Ex ic on to intrinsically llues:	/ safe circuits.						
GII GUITG	<i>U</i> i			<b>C</b> i	<i>L</i> <sub>i</sub>				
	25.2 V			(*1	(*1				

(\*1 = values negligibly small

Digital output circuits	For connecti	Type of protection: Ex ia For connection to certified intrinsically safe circuits. Maximum values:					
• Terminals	<b>U</b> i	/i	<b>P</b> i	Ci	<b>L</b> i		
31(+) and 32(-)	17.5 V	100 mA	250 mW	5.2 nF	(*1		
41(+) and 42(-) 51(+) and 52(-) • Galvanically safe isolated from all other circuits	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:					
	<b>U</b> i	/i		Ci	<b>L</b> i		
	17.5 V	100 mA		5.2 nF	(*1		
	For connecti	tection: Ex ia on to certified in	trinsically safe c	ircuits.			
Digital input circuits  Terminals 11(+) and 12(-) Galvanically safe isolated from all other	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:					
circuits	<b>U</b> i			Ci	<i>L</i> i		
	32 V	1		(*1	(*1		



		tection: Ex ia on to certified in alues:	trinsically safe c	ircuits.				
	<i>U</i> i	<i>l</i> i	<b>P</b> i	<b>C</b> i	<i>L</i> i			
Digital output (fault signal)	15 V	25 mA	64 mW	5.2 nF	(*1			
• Terminals 31(+) and 32(-)	For connecti Maximum va	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:						
	<i>U</i> i	<i>l</i> i		C <sub>i</sub>	<b>L</b> i			
	15 V	25 mA		5.2 nF	(*1			
Digital output (slot initiators)		tection: Ex ia on to certified in	trinsically safe c	sircuits.				
• • • • • • • • • • • • • • • • • • • •	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:							
• Terminals 41(+) and 42(-) 51(+) and 52(-)								
			<b>P</b> i	Ci	Li			

(\*1 = values negligibly small

Option Module: Inductive Limit Switch	ches, marked by	ILS-2, 6DR4	004-6G, A5E	52635888				
built in ARCAPRO 827A.**-*I		tection: Ex ia on to certified in lues:	trinsically safe o	ircuits.				
	<i>U</i> i	/i	<b>P</b> i	<b>C</b> i	<i>L</i> <sub>i</sub>			
Digital output (fault signal)	17.5 V	100 mA	250 mW	5.2 nF	(*1			
• Terminals 31(+) and 32(-)	For connection	Type of protection: Ex ic For connection to certified intrinsically safe circuits.  Maximum values:						
	<i>U</i> i	<i>I</i> i		<b>C</b> i	<b>L</b> i			
	17.5 V	100 mA		5.2 nF	(*1			
Digital output (slot initiators)  • Terminals  41(+) and 42(-)	For connection Or Type of protection	tection: Ex ia on to certified in tection: Ex ic on to intrinsically lues:	,	ircuits.				
51(+) and 52(-)	<i>U</i> i	/i	<b>P</b> i	Ci	<b>L</b> i			
	16 V	25 mA	64 mW	36 nF	100 µH			



	For connecti	Type of protection: Ex ia  For connection to certified intrinsically safe circuits.  Maximum values:						
	<i>U</i> i	<b>/</b> i	<b>P</b> i	<b>C</b> i	$L_{\rm i}$			
Digital output (fault signal)	15 V	25 mA	64 mW	5.2 nF	(*1			
• Terminals 31(+) and 32(-)	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:						
	<i>U</i> i	<b>/</b> i		<b>C</b> i	$\boldsymbol{L}_{i}$			
	15 V	25 mA		5.2 nF	(*1			
	For connecti	Type of protection: Ex ia  For connection to certified intrinsically safe circuits.  Maximum values:						
Dividal audus d	<i>U</i> i	<i>l</i> i	<b>P</b> i	Ci	<i>L</i> i			
Digital output  • Terminals	30 V	100 mA	750 mW	(*1	(*1			
41(+) and 42(-) 51(+) and 52(-)	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:							
41(+) and 42(-)			,					
41(+) and 42(-)			,	Ci	<i>L</i> <sub>i</sub>			

(\*1 = values negligibly small

	Type of protection: Ex ia  For connection to certified intrinsically safe circuits.  Maximum values:							
	<i>U</i> i	<b>/</b> i	<b>P</b> i	Ci	<i>L</i> i			
Digital output (fault signal)	17.5 V	100 mA	250 mW	5.2 nF	(*1			
• Terminals 31(+) and 32(-)	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:						
	<i>U</i> i	<b>/</b> i		<b>C</b> i	<i>L</i> <sub>i</sub>			
	17.5 V	100 mA	1	5.2 nF	(*1			
	Type of protection: Ex ia For connection to certified intrinsically safe circuits. Maximum values:							
Digital autout	<i>U</i> i	<i>l</i> i	<b>P</b> i	Ci	<i>L</i> i			
Digital output  • Terminals	30 V	100 mA	750 mW	(*1	(*1			
41(+) and 42(-) 51(+) and 52(-)	For connecti	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:						
	<b>U</b> i	<i>l</i> i		<b>C</b> i	<i>L</i> <sub>i</sub>			
	30 V	100 mA	1	(*1	(*1			



built in ARCAPRO 827A.**-A	Type of protection: Ex ia For connection to certified intrinsically safe circuits.  Maximum values:				
	<i>U</i> i	/i	<b>P</b> i	<b>C</b> i	<i>L</i> i
<ul> <li>Current output</li> <li>Terminals 61(+) and 62(-)</li> <li>Galvanically safe isolated from other circuits</li> </ul>	30 V	100 mA	1 W	2 nF	(*1
	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:				
	<i>U</i> i	/i		<b>C</b> i	<b>L</b> i
	30 V	100 mA		2 nF	(*1

Option Module: Internal NCS Module, ma	arked by iNC	<b>S</b> , 6DR4004-	5LE			
	Type of protection: Ex ia For connection to certified intrinsically safe circuits. Maximum values:					
	<i>U</i> i	<i>l</i> i	<b>P</b> i	<b>C</b> i	<i>L</i> <sub>i</sub>	
Power supply and signal circuits electrical connected to the basic device	5 V	160 mA	120 mW	110 nF	270 µH	
	Type of protection: Ex ic For connection to intrinsically safe circuits. Maximum values:					
	<b>U</b> i	/i		<b>C</b> i	<i>L</i> i	
	5 V	160 mA		110 nF	270 µH	

<b>Option Module:</b> Analog Input Module, ma built in ARCAPRO 827A.**-***-**2	rked by <b>AIM</b> ,	Type 6DR40	04-6F		
Connection module with filter elements	Type of protection: Ex ia supplied via basic device with Profibus PA or Foundation Fieldbus FF For connection to certified intrinsically safe circuits. Or Type of protection: Ex ic supplied via basic device with Profibus PA or Foundation Fieldbus FF For connection to intrinsically safe circuits. Maximum values:				
intent to use for connection of:	Uo	I <sub>o</sub>	Po	C <sub>o</sub>	Lo
Position Transmitter 6DR4004-1ES or 6DR4004-2ES or 6DR4004-3ES or 6DR4004-4ES (only Ex ia, Ex ic, Ex db ia, Ex tb) or Non-Contacting Sensor (NCS) 6DR4004-6N	5 V	static: 75 mA short-time: 160 mA	120 mW	1 μF	1 mH
	Type of protection: Ex ia for supply via the other basic devices. For connection to certified intrinsically safe circuits. Or Type of protection: Ex ic for supply via the other basic devices. For connection to intrinsically safe circuits. Maximum values:				
	U <sub>o</sub>	I <sub>o</sub>	Po	Co	Lo
	5 V	100 mA	33 mW	1 μF	1 mH



(16) Drawings and documents are listed in the ATEX Assessment Report No. 23 203 350721

#### (17) Specific Conditions for Use

(17) Specific Conditions for Use							
	The electro-pneumatic positioner ARCAPRO 827A with type code (827A. X*- ***-***-*) can also be operated with clean, dry, natural gas in locations where pressurized air is not readily available.						
Ex i Intrinsic Safety	As a requirement for operation with natural gas all inserted electronics of the ARCAPRO 827A, including optional modules, must comply with the availabl safety requirements protection type "Ex ia" and an electric connection with protection level "ia".						
	Sufficient ventilation for this operating condition must be ensured to avoid Zone 0 atmosphere around the device.						
	Operating instructions must be adhered to.						
	The connecting and disconnecting of not energy limited circuits to the terminals and the plugging respectively unplugging of the M12 connector of the internal plug- and socket connectors under voltage is permitted on the presence of hazardous atmosphere can be excluded.						
	The capacitance of the labels exceeds the allowed value of 3 pF. Operating instructions must be observed.						
	When retrofitting, the optional modules listed below must be marked on the manufacturer's label of the device by ticking the corresponding checkbox:						
	Type designation modules	Identification of the checkbox on the label	Marking on the PCBA for retrofitting into an existing device				
General	Binary Module	DIO	6DR4004-6A				
	Digital I/O Module	DIO-2	6DR4004-6A, A5E52635850				
	Slot-type initiator module	ILS	6DR4004-6G				
	Inductive Limit Switches	ILS-2	6DR4004-6G, A5E52635888				
	Contact module	MLS	6DR4004-6K				
	Mechanic Limit Switches	MLS-2	6DR4004-6K, A5E52659309				
	Analog Output Module	AOM	6DR4004-6J				
	Analog Input Module	AIM	6DR4004-6F				
	Internal NCS module	iNCS	6DR4004-5LE				

### (18) Essential Health and Safety Requirements

no additional ones

- End of EU-Type Examination Certificate -