



Translation

(1) **EC TYPE EXAMINATION CERTIFICATE**

(2) Equipment or Protective System intended for use in potentially explosive atmospheres: **Directive 94/9/EC**

(3) EC Type Examination Certificate Number:

TUV 01 ATEX 1695

(4) Equipment: **Electropneumatic Positioner ARCAPRO 827A.X*****
with options

(5) Manufacturer: **ARCA-Regier GmbH**
Kempner Str. 18

(6) Address: **D-47948 Tonisvorst**

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Hannover/Sachsen-Anhalt e.V. TÜV CERT Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 00-Px 08110.

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

EN 50 014: 1997

EN 50 020: 1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC type examination certificate relates only to the design and construction of the specified equipment or protective system according to Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and placing on the market of this equipment or protective system.

(12) The marking of the equipment or protective system must include the following:



II 2 G EEx ia IIC T6 resp. EEx Ib IIC T6

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover

Manover, 2001-03-30



St. Wild
Head of the
Certification Body



(13)

SCHEDULE

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 01 ATEX 1695**

(15) Description of equipment

The Electropneumatic Positioner ARCAPRO 827A.X*-***-*** is used for the control of valve resp. of flap positions of pneumatic actuators.

The Electropneumatic Positioner ARCAPRO is an intrinsically safe apparatus that may be operated with the options listed below and that meets the requirements of category 2.

Options:	Binary module	6DR4004-6A
	Slot initiator module	6DR4004-6G
	Analogue module	6DR4004-6J
	Card module for an external sensor (potentiometer)	C73451-A430-L8

The use of the positioner fitted with the option analogue module is only permissible for the temperature classes T4 – T1.

The permissible ambient temperature range in dependence of the temperature class has to be taken from the following table:

temperature class	permissible ambient temperature range
T6	-30°C to 50°C
T5	-30°C to 65°C
T4 - T1	-30°C to 80°C

Electrical Data

Basic device:

2-wire circuit without Hart

for 827A.X2-**0-***

Motherboard –L250

Power supply /

control current 4-20 mAin type of protection "Intrinsic Safety" EEx ia IIC

series connection EEx ib IIC

(terminals 6+ and 7/8)

only for the connection to certified intrinsically safe circuits

Maximum values:

$U_i = 30 \text{ V}$

$I_i = 100 \text{ mA}$

$P_i = 1 \text{ W}$

effective internal capacitance: $C_i = 15 \text{ nF}$

effective internal inductance: $L_i = 0,12 \text{ mH}$



2-wire circuit with Hart

for 827A.X4-**H-***

Motherboard –L200

Power supply /

control current 4-20 mAin type of protection “Intrinsic Safety” EEx ia IIC

series connection EEx ib IIC

(terminals 3+ and 7/8,

Jumper between terminals 4/5 – 6)

only for the connection to certified intrinsically safe circuits

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 1 \text{ W}$$

effective internal capacitance: $C_i = 30 \text{ nF}$

effective internal inductance: $L_i = 0,24 \text{ mH}$

3/4-wire circuit with Hart

for 827A.X4-**H-***

Plug-in module –L200

Power supply 18-30 V in type of protection “Intrinsic Safety” EEx ia IIC

(terminals 2+ and 4/5) EEx ib IIC

and

Control current 4-20 mA

(terminals 6+ and 7/8)

only for the connection to certified intrinsically safe circuits

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 1 \text{ W}$$

Power supply and the control current

circuit are galvanically separated

or have a common base point

(terminals 4/5 - 7/8)

effective internal capacitance: $C_i = 15 \text{ nF}$

effective internal inductance: $L_i = 0,12 \text{ mH}$

Binary input.....jumpered or connected to a switch contact

Plug-in module –L200 and –L250

(terminal 9 and 10)

Options

Binary module type 6DR4004-6A:

Binary outputs.....in type of protection “Intrinsic Safety” EEx ia IIC
EEx ib IIC
(terminals 31 and 32,
terminals 41 and 42,
terminals 51 and 52) only for the connection to certified intrinsically
safe circuits

safely galvanically separated
from each other.

Maximum values:

$$\begin{aligned} U_i &= 15,5 \text{ V} \\ I_i &= 25 \text{ mA} \\ P_i &= 64 \text{ mW} \end{aligned}$$

effective internal capacitance: $C_i = 5,2 \text{ nF}$
The effective internal inductance is negligibly
small.

Binary input.....in type of protection “Intrinsic Safety” EEx ia IIC
EEx ib IIC
(terminals 11 and 12,
terminals 21 and 22 (jumper)) only for the connection to certified intrinsically
safe circuits

safely galvanically separated
from the binary outputs
and the basic device,
but can also activated via
a jumper (then no galvanic
separation from the
basic device)

Maximum value:

$$U_i = 25,2 \text{ V}$$

The effective internal inductance and
capacitance is negligibly small.

Slot initiator module type 6DR4004-6G:

Binary output (fault signalling)in type of protection “Intrinsic Safety” EEx ia IIC
EEx ib IIC
(terminals 31 and 32) only for the connection to certified intrinsically
safe circuits

Maximum values:

$$\begin{aligned} U_i &= 15,5 \text{ V} \\ I_i &= 25 \text{ mA} \\ P_i &= 64 \text{ mW} \end{aligned}$$

effective internal capacitance: $C_i = 5,2 \text{ nF}$
The effective internal inductance is negligibly
small.



Binary output (slot initiator)in type of protection "Intrinsic Safety" EEx ia IIC
 EEx ib IIC
 (terminals 41 and 42, only for the connection to certified intrinsically
 terminals 51 and 52) safe circuits

Maximum values per circuit:

$$U_i = 15,5 \text{ V}$$

$$I_i = 25 \text{ mA}$$

$$P_i = 64 \text{ mW}$$

$$\text{effective internal capacitance: } C_i = 30 \text{ nF}$$

$$\text{effective internal inductance: } L_i = 100 \text{ } \mu\text{H}$$

Analogue module type 6DR4004-6J:

For the use at temperature classes T4 – T1 only

Power output.....in type of protection "Intrinsic Safety" EEx ia IIC
 EEx ib IIC
 (terminals 61 and 62) only for the connection to certified intrinsically
 safe circuits

safely galvanically
 separated from the
 binary option and
 the basic device

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 1 \text{ W}$$

$$\text{effective internal capacitance: } C_i = 11 \text{ nF}$$

The effective internal inductance is negligibly small.

Card module for an external Sensor (potentiometer) type C73451-A430-L8:

External potentiometer.....only for the connection to certified intrinsically
 safe circuits

galvanically connected to
 the basic device

Maximum values:

$$U_o = 5 \text{ V}$$

$$I_o = 6 \text{ mA}$$

$$P_o = 30 \text{ mW}$$

$$\text{effective outer capacitance: } C_o = 1 \text{ } \mu\text{F}$$

$$\text{effective outer inductance: } L_o = 1 \text{ mH}$$



(16) Test documents are listed in the test report No.: 01 Px 08110.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones



1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 01 ATEX 1695

of the company: ARCA-Regler GmbH
 Kempener Str. 18
 D-47918 Tönisvorst

In the future, the Electropneumatic positioner ARCAPRO 827A.X*-***-*** inclusive the modules listed below may also be manufactured according to the test documents listed in the test report.

Options:	Binary module	6DR4004-6A
	Slot initiator module	6DR4004-6G
	Analogue module	6DR4004-6J
	Card module for an external sensor (potentiometer)	C73451-A430-L8

The amendments concern the internal design of several modules and of the basic device and some electrical data are changed, as well.

All other data apply unchanged for this 1. Supplement. These data are repeated in the following.

The use of the positioner fitted with the option analogues module is only permissible for the temperature classes T4 – T1.

The permissible ambient temperature range in dependence of the temperature class has to be taken from the following table:

temperature class	permissible ambient temperature range
T6	-30°C to 50°C
T5	-30°C to 65°C
T4 - T1	-30°C to 80°C

Electrical Data

Basic device:

2-wire circuit without Hart

for 827A.X2-**0-***

Motherboard –L250

Power supply /

control current 4-20 mA in type of protection “Intrinsic Safety” EEx ia IIC
 series connection EEx ib IIC
 (terminals 6+ and 7/8) only for the connection to certified intrinsically safe circuits

Maximum values:

$U_i = 30 \text{ V}$

$I_i = 100 \text{ mA}$

$P_i = 1 \text{ W}$

effective internal capacitance: $C_i = 22 \text{ nF}$

effective internal inductance: $L_i = 0,12 \text{ mH}$



1. Supplement to EC Type-Examination Certificate No. TÜV 01 ATEX 1695

2-wire circuit with Hart

for 827A.X4-**H-***

Motherboard –L200

Power supply /

control current 4-20 mA in type of protection “Intrinsic Safety” EEx ia IIC
series connection EEx ib IIC
(terminals 3+ and 7/8, only for the connection to certified intrinsically
jumper between terminals 4/5 – 6) safe circuits

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 1 \text{ W}$$

effective internal capacitance: $C_i = 7 \text{ nF}$

effective internal inductance: $L_i = 0,24 \text{ mH}$

3/4-wire circuit with Hart

for 827A.X4-**H-***

Plug-in module –L200

Power supply 18-30 V in type of protection “Intrinsic Safety” EEx ia IIC
(terminals 2+ and 4/5) EEx ib IIC

and

only for the connection to certified intrinsically
safe circuits

Control current 4-20 mA
(terminals 6+ and 7/8)

Maximum values:

$$U_i = 30 \text{ V}$$

$$I_i = 100 \text{ mA}$$

$$P_i = 1 \text{ W}$$

power supply and the control current
circuit are galvanically separated
or have a common base point
(terminals 4/5 - 7/8)

effective internal capacitance: $C_i = 22 \text{ nF}$

effective internal inductance: $L_i = 0,12 \text{ mH}$

Binary input jumpered or connected to a switch contact

Plug-in module –L200 and –L250
(terminal 9 and 10)



Options

Binary module type 6DR4004-6A:

Binary outputs in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC
(terminals 31 and 32,
terminals 41 and 42,
terminals 51 and 52) only for the connection to certified intrinsically
safe circuits

galvanically separated
from each other.

Maximum values:
 $U_i = 15,5 \text{ V}$
 $I_i = 25 \text{ mA}$
 $P_i = 64 \text{ mW}$

effective internal capacitance: $C_i = 5,2 \text{ nF}$
The effective internal inductance is negligibly
small.

Binary input in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC
(terminals 11 and 12,
terminals 21 and 22 (jumper)) only for the connection to certified intrinsically
safe circuits

galvanically separated
from the binary outputs
and the basic device,
but can also activated via
a jumper (then no galvanic
separation from the
basic device)

Maximum value:
 $U_i = 25,2 \text{ V}$

The effective internal inductance and
capacitance is negligibly small.

Slot initiator module type 6DR4004-6G:

Binary output (fault signalling) in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC
(terminals 31 and 32) only for the connection to certified intrinsically
safe circuits

Maximum values:
 $U_i = 15,5 \text{ V}$
 $I_i = 25 \text{ mA}$
 $P_i = 64 \text{ mW}$

effective internal capacitance: $C_i = 5,2 \text{ nF}$
The effective internal inductance is negligibly
small.



1. Supplement to EC Type-Examination Certificate No. TÜV 01 ATEX 1695

Binary output (slot initiator)..... in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC
(terminals 41 and 42, only for the connection to certified intrinsically
terminals 51 and 52) safe circuits

Maximum values per circuit:

$$\begin{aligned}U_i &= 15,5 \text{ V} \\I_i &= 25 \text{ mA} \\P_i &= 64 \text{ mW}\end{aligned}$$

effective internal capacitance: $C_i = 41 \text{ nF}$

effective internal inductance: $L_i = 100 \text{ }\mu\text{H}$

Analogous module type 6DR4004-6J:

For the use at temperature classes T4 – T1 only

Power output in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC
(terminals 61 and 62) only for the connection to certified intrinsically
safe circuits

galvanically
separated from the
binary option and
the basic device

Maximum values:

$$\begin{aligned}U_i &= 30 \text{ V} \\I_i &= 100 \text{ mA} \\P_i &= 1 \text{ W}\end{aligned}$$

effective internal capacitance: $C_i = 11 \text{ nF}$

The effective internal inductance is negligibly
small.

Card module for an external Sensor (potentiometer) type C73451-A430-L8:

External potentiometer in type of protection "Intrinsic Safety" EEx ia IIC
EEx ib IIC

galvanically connected to
the basic device

Maximum values:

$$\begin{aligned}U_o &= 5 \text{ V} \\I_o &= 100 \text{ mA} \\P_o &= 33 \text{ mW}\end{aligned}$$

effective outer capacitance: $C_o = 1 \text{ }\mu\text{F}$

effective outer inductance: $L_o = 1 \text{ mH}$



1. Supplement to EC Type-Examination Certificate No. TÜV 01 ATEX 1695

(16) Test documents are listed in the test report N° 02 YEX 142590.

(17) Special conditions for safe use
none

(18) Essential Health and Safety Requirements
no additional ones

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover

Hannover, 2002-02-28

A handwritten signature in black ink, appearing to read 'G. Kroll'.

Head of the
Certification Body



Translation

2. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 01 ATEX 1695

of the company: Arca-Regler GmbH
Kempener Str. 18
D-47918 Tönisvorst

In the future, the electropneumatic positioners of the series ARCAPRO 827A.X*-***-*** may also be manufactured according to the test documents listed in the test report.

The amendments concern the internal design.

The electrical data and all other data apply unchanged for this supplement.

Test documents are listed in the test report N° 03 YEX 550619.

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Hannover, 2003-07-09

Head of the
Certification Body



Translation

3. SUPPLEMENT to

EC-TYPE EXAMINATION CERTIFICATE No. TÜV 01 ATEX 1695

of the company: Arca-Regler GmbH
Kempener Str. 18
D-47918 Tönisvorst

The electropneumatic positioners of the series ARCAPRO 827A.X*-***-*** have been extended by a basic device provided with Profibus connection, type 827A.E/X*-**P-***, and Foundation Fieldbus connection, type 827A.E/X*-**F-***, which may also be operated with the options listed below.

Options: Alarm module 6DR4004-6A
SIA module 6DR4004-6G
ly module 6DR4004-6J
Card module for an external sensor (potentiometer) C73451-A430-L8

When the option "Card module for an external sensor (potentiometer)" is used with the basic devices listed above amended electrical data apply.

Electrical Data

Basic devices:

Profibus device

for 827A.E/X*-**P-***

motherboard -A5E00095037

Foundation Fieldbus device

for 827A.E/X*-**F-***,

motherboard -A5E00164801

Bus circuit in type of protection Intrinsic Safety EEx ia IIC
(resp. EEx ib IIC)

(terminals 6 and 7)

only for the connection to certified intrinsically safe circuits

Maximum values:

Table with 3 columns: Parameter, FISCO power supply gas group IIC or IIB, Barrier gas group IIC or IIB. Rows: Ui (17,5 V / 24 V), Ii (380 mA / 250 mA), Pi (5,32 W / 1,2 W)

The effective internal capacitance is negligibly small.
effective internal inductance Li = 8 µH

Translation

4. SUPPLEMENT

to Certificate No. TÜV 01 ATEX 1695
Equipment: Electropneumatic positioner ARCAPRO 827A.X*-*-*-*-* with options
Manufacturer: ARCA-Regler GmbH
Address: Kempener Str. 18
 47918 Tönisvorst
 Germany
Order number: 8000553877
Date of issue: 2007-05-29

Amendments:

In the future, the electropneumatic positioner ARCAPRO 827A.X*-*-*-*-* may also be manufactured and operated according to the documents listed in the test report.

The amendments concern the inner construction of the device, device connectors for profibus and foundation fieldbus, a locking unit for the potentiometer, an additional material for the type label and a limiting switch module with the identifier 6DR4004-6K as an additional option.

The type designation is extended by a further place for the marking of the connection thread. The type designation is in the future:

827A.X*-*-*-*-*

In the future, the device of the category "ia" can also be operated with clean dry natural gas, freely by additions at place of air. The condition for the operation with natural gas is an electric connection of the category "ia".

Electrical data

Limiting switch module type 6DR4004-6K

1 binary output (fault signalling) in type of protection "Intrinsic Safety" Ex ia IIC
 (terminals 31 and 32) Ex ib IIC
 only for the connection to certified intrinsically safe circuits
 (for example switching amplifiers according to
 DIN EN 60947-5-6)

Maximum values: $U_i = 15,5 \text{ V}$
 $I_i = 25 \text{ mA}$
 $P_i = 64 \text{ mW}$

effective internal capacitance: $C_i = 5,2 \text{ nF}$
 effective internal inductance: $L_i = \text{negligibly small}$

4. Supplement to Certificate No. TÜV 01 ATEX 1695

2 binary outputs (limit contacts) in type of protection "Intrinsic Safety" Ex ia IIC
(terminals 41 and 42 Ex ib IIC
terminals 51 and 52) only for the connection to certified intrinsically safe circuits

Maximum values: $U_i = 30 \text{ V}$
 $I_i = 100 \text{ mA}$
 $P_i = 750 \text{ mW}$

effective internal capacitance: $C_i =$ negligibly small
effective internal inductance: $L_i =$ negligibly small

The inputs for the limit contacts are not potential separated from each other.

All other data apply unchanged for this supplement.

The equipment incl. of this supplement meets the requirements of these standards:

EN 50014:1997+A1+A2
IEC 60079-11:1999

EN 50020:2002

EN 60079-0:2004

(16) The test documents are listed in the test report No. 07203553877.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited 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 certification body



Schwedt

Hanover office, Am TÜV 1, 30519 Hanover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590