

**TRANSLATION**

(1) **EC TYPE EXAMINATION CERTIFICATION**

(2) **Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres – Directive 94/9/EC**

(3) **EC Type Examination Certificate Number**

**PTB 01 ATEX 2085**

(4) **Equipment:** Model 3963-1.. Solenoid Valve

(5) **Manufacturer:** SAMSON AG

(6) **Address:** Weismüllerstr. 3, D-60314 Frankfurt, Germany

(7) The equipment and any acceptable variations thereof are specified in the schedule to this certificate.

(8) The Physikalisch-Technische Bundesanstalt, notified body number 0102 according to Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 specified in Annex II to the Directive.

The examination and test results are recorded in confidential report: **PTB Ex 01-21061**

(9) The Essential Health and Safety Requirements are satisfied by compliance with

**EN 50014: 1997**

**EN 50020: 1994**

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EC Type Examination Certificates without signature and seal are invalid.  
This EC Type Examination Certificate may only be reproduced in its entirety and without any changes, schedule included.  
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use as specified in the schedule to this certificate.
- (11) According to the Directive 94/9/EC, this EC TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.
- (12) The marking of the equipment shall include the following:



Zertifizierungsstelle Explosionsschutz  
By order

Braunschweig, 8. August 2001

(Signature)

(Seal)

Dr. Ing. U. Johannsmeyer  
Regierungsdirektor

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## Schedule

(13)

(14) **EC TYPE EXAMINATION CERTIFICATE No. PTB 01 ATEX 2085**

(15) **Description of Equipment**

The Model 3963-1.. Solenoid Valve converts electrical binary signals in the input circuit into pneumatic output signals. It is intended for attachment to actuators and for constructing control systems.

It may be installed inside and outside of hazardous areas.

The Model 3963-1.. Solenoid Valve is a passive two-terminal network that may be connected to any certified intrinsically safe circuit, provided the permissible maximum values of  $U_i$ ,  $I_i$  and  $P_i$  are not exceeded.

By connection of suitable series dropping resistors the Model 3963-1.. Solenoid Valve can accommodate nominal voltages of 6 V, 12 V and 24 V.

**Electrical data**

Signal circuit normal signal ... Type of protection: Intrinsic Safety EEx ia IIC

The correlation between version, temperature classification, permissible maximum ambient temperature ranges and maximum power dissipation is shown in the table below:

Version ( UN )	6V	12V	24V
Temperature class T6 T5 T4	60°C -45°C ≤ T <sub>a</sub> ≤ 70°C 80°C		
Characteristic linear or rectangular P <sub>i</sub>	#	##	
C <sub>i</sub> negligible, L <sub>i</sub> negligible			

# The permissible maximum power dissipation  $P_i$  in the 6 V version is 250 mW.

## The maximum values for connection to a certified intrinsically safe circuit are shown in the table below:

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U <sub>i</sub>	25V	27V	28V	30V	32V
I <sub>i</sub>	150mA	125mA	115mA	100mA	85mA
P <sub>i</sub>	no limitation				
C <sub>i</sub> negligible, L <sub>i</sub> negligible					

(16) Test Report PTB Ex 01-21061

(17) Special conditions for safe use

None

(18) Special Health and Safety Requirements

In compliance with the standards specified above.

Zertifizierungsstelle Explosionsschutz  
By order

Braunschweig, 8 August 2001

(Signature)                      (seal)

Dr. Ing. U. Johannsmeyer  
Regierungsdirektor

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## 1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2085

(Translation)

Equipment: Solenoid, type 3963-1.. and type 3963-1.....25

Marking:  II 2 G Ex ia IIC T6 Gb **alternatively** II 2 G Ex ia IIC T6

Manufacturer: SAMSON AG Mess- und Regeltechnik

Address: Weismüllerstr. 3, 60314 Frankfurt, Germany

### Description of supplements and modifications

The solenoid of type 3963-1.. converts binary electrical signals of the input circuit into pneumatic output signals. It is mounted on actuators and used for the design of control systems.

The equipment is intended for the installation in hazardous areas.

The solenoid of type 3963-1.. is a passive two-terminal network that may be connected to intrinsically safe circuits unless the permissible maximum values for  $U_i$ ,  $I_i$  and  $P_i$  are exceeded.

Using appropriate resistors connected in series to the coil, the solenoid of type 3963-1.. is suitable for the operation with nominal voltages of 6 V, 12 V and 24 V.

The solenoid of type 3963-1.. is supplemented by type 3963-1.....25. This variant is provided with an electrical cubic LED-plug showing the operating mode of the equipment. Further modifications have not been made.

The permissible thermal and electrical maximum values are presented in summary.

### Electrical data

Signal circuit, nominal signal.....type of protection Intrinsic Safety Ex ia IIC

For relationship between variant, temperature class, permissible ambient temperature ranges and maximum power dissipation, reference is made to the following table:

ZSEx10101e.dotm

## 1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2085

Variant		3963-11..	3963-12..	3963-13..
$U_N$		6 V	12 V	24 V
3936-1..	T6	60 °C		
	T5	-45 °C ... 70 °C		
	T4	80 °C		
3936-1.....25	T6	55 °C		
	T5	-45 °C ... 70 °C		
	T4	80 °C		
linear or rectangular characteristic	$P_i$	*	**	

\* The maximum permissible power dissipation  $P_i$  of the 6 V-design is 250 mW.

\*\* The maximum values for connection to a certified intrinsically safe circuit are tabulated below:

$U_i$	25 V	27 V	28 V	30 V	32 V
$I_i$	150 mA	125 mA	115 mA	100 mA	85 mA
$P_i$	no limitation				

$C_i$  negligibly low  
 $L_i$  negligibly low

### Applied standards

EN 60079-0:2009

EN 60079-11:2012

Test report: PTB Ex 12-22145

Zertifizierungssektor Explosionschutz  
 On behalf of PTB:

Dr.-Ing. U. Johannsmeyer  
 Direktor und Professor



Braunschweig, November 28, 2012

[PTB logo]

[federal eagle logo]

- (1) **EU-Type Examination Certificate**
- (2) Equipment and protective systems intended for use in potentially explosive atmospheres  
– **Directive 2014/34/EU**
- (3) EU-type examination certificate number  
**PTB 01 ATEX 2085** **Issue: 01**
- (4) Product: Type 3963-1..... .. Solenoid Valve
- (5) Manufacturer: SAMSON AG
- (6) Address: Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
- (7) The design of this product and the various permitted versions are defined in the Annex and the listed documents associated with this type-examination certificate.
- (8) The Physikalisch-Technische Bundesanstalt (notified body no. 0102 according to Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014) certifies that this product meets the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres in accordance with Annex II of the Directive.  
The test results are recorded in the confidential test report PTB Ex 19-27051.
- (9) The essential health and safety requirements are met by compliance with  
**EN 60079-0:2012+A11:2013** **EN 60079-11:2012**
- (10) The 'X' mark after the certification number refers to the special conditions for the safe use of the product in the Annex of this certificate.
- (11) This EU-type examination certificate only applies to the design and testing of the specified product according to Directive 2014/34/EU. Other requirements of this directive apply to the manufacture and placing on the market for the first time. This certificate does not cover these requirements.
- (12) The marking of the product must contain the following details:

 **II 2 G Ex ia IIC T6...T4 Gb**

Conformity Assessment Body, Explosion Protection  
O/o

Braunschweig, 18 November 2019

[signature F. Lienesch,  
round stamp with federal eagle logo and  
Physikalisch Technische Bundesanstalt 56 lettering]

Dr.-Ing. F. Lienesch  
Director and Professor

**Annex**

(13)

(14) **EU-Type Examination Certificate PTB 01 ATEX 2085, Issue: 01**

(15) Product description

The solenoid valve converts binary electrical signals in the input circuit into pneumatic output signals. It is designed for attachment to actuators and for implementing control loops. The solenoid valve is designed for installation in hazardous areas.

The solenoid valve is a passive two-pole unit suitable for connection to certified intrinsically safe power circuits, provided the permissible maximum values for  $U_i$ ,  $I_i$  and  $P_i$  are not exceeded.

The solenoid valve is suitable for rated voltages of 6, 12 and 24 V. Optionally, it is equipped with an electrical rectangular connector with LED to indicate the operating state of the solenoid valve.

The following table lists the relation between the temperature class and the permissible ambient temperature ranges for gas group IIC:

Version	Temperature class	Ambient temperature range
Without electrical rectangular connector with LED	T6	-45 to +60 °C
	T5	-45 to +70 °C
	T4	-45 to +80 °C
With electrical rectangular connector with LED (Type 3963-1.....25)	T6	-45 to +55 °C
	T5	-45 to +70 °C
	T4	-45 to +80 °C

Electrical data:

Signal circuit..... in type of protection intrinsic safety Ex ia IIC (+81, -82)

For connection to a certified intrinsically safe current circuit only

Max. values:

For Type 3963-11..... (version with 6 V rated signal)

$U_i = 32 \text{ V}$

$I_i = 150 \text{ mA}$

$P_i = 250 \text{ mW}$

$L_i$  negligibly small

$C_i$  negligibly small

For all remaining versions (12 V and 24 V  
rated signal)

$U_i = 32 \text{ V}$   
 $I_i = 150 \text{ mA}$   
 $L_i$  negligibly small  
 $C_i$  negligibly small

Modifications with regard to former issues:

The modifications concern the updating of the test specifications, the marking and electrical data.

(16) Test report PTB Ex 19-27051

(17) Special conditions

None

(18) Essential health and safety requirements

Met through compliance with the above listed standards.

According to Article 41 of the Directive 2014/34/EU, EC-type examination certificates issued under Directive 94/9/EC, which were issued before the Directive 2014/34/EU came into force (20 April 2016), may be considered as if they were already issued to comply with Directive 2014/34/EU. With authorization of the European Commission, addenda to such EC-type examination certificates and new issues of such certificates may still bear the original certificate number issued before 20 April 2016.

Conformity Assessment Body, Explosion Protection  
O/o

Braunschweig, 18 November 2019

[signature F. Lienesch,  
round stamp with federal eagle logo and  
Physikalisch Technische Bundesanstalt 56 lettering]

Dr.-Ing. F. Lienesch

Director and Professor



(1) **EU-TYPE EXAMINATION CERTIFICATE**  
(Translation)

(2) Equipment or Protective Systems Intended for Use in  
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

**PTB 01 ATEX 2085**

**Issue: 01**

(4) Product: Solenoid valve, type 3963-1. ....

(5) Manufacturer: SAMSON AG

(6) Address: Weismüllerstraße 3, 60314 Frankfurt, Germany

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 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 Test Report PTB Ex 19-27051.

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

**EN 60079-0:2012+A11:2013**

**EN 60079-11:2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of 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 in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

 **II 2 G Ex ia IIC T6...T4 Gb**

Konformitätsbewertungsstelle, Sektor Explosionsschutz  
On behalf of PTB:

Braunschweig, November 18, 2019

Dr.-Ing. F. Lienesch  
Direktor und Professor



## SCHEDULE

(13)

(14) EU-Type Examination Certificate Number PTB 01 ATEX 2085, Issue: 01

(15) Description of Product

The solenoid valve converts binary electrical signals of the input circuit into pneumatic output signals. It is mounted on actuators and used for the design of control systems.

The equipment is intended for the installation in hazardous areas.

The solenoid valve is a passive two-terminal network that may be connected to intrinsically safe circuits unless the permissible maximum values for  $U_i$ ,  $I_i$  and  $P_i$  are exceeded.

The solenoid valve is suitable for the operation with nominal voltages of 6 V, 12 V and 24 V. An optionally available variant is provided with an electrical cubic LED-plug showing the operating mode of the equipment.

For relationship between temperature classes and permissible ambient temperature ranges for gas group IIC, reference is made to the following table.

Variant	Temperature class	Ambient temperature range
Without cubic LED-plug	T6	-45 °C ... +60 °C
	T5	-45 °C ... +70 °C
	T4	-45 °C ... +80 °C
With cubic LED-plug (Typ 3963-1. .... 25)	T6	-45 °C ... +55 °C
	T5	-45 °C ... +70 °C
	T4	-45 °C ... +80 °C

Electrical data:

Signal circuit  
(+ 81, - 82)

type of protection Intrinsic Safety Ex ia IIC

Only for connection to a certified intrinsically safe circuit

Maximum values:

for type 3963-11 ..... .. (variant with nominal signal 6 V)

$$U_i = 32 \text{ V}$$

$$I_i = 150 \text{ mA}$$

$$P_i = 250 \text{ mW}$$

$L_i$  negligibly low

$C_i$  negligibly low

for all remaining variants (nominal signal 12 V and 24 V)

$$U_i = 32 \text{ V}$$

$$I_i = 150 \text{ mA}$$

$L_i$  negligibly low

$C_i$  negligibly low

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## SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 2085 , Issue: 01

### Changes with respect to previous editions

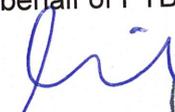
The modifications concern the update of the test specification, the marking and the electrical data.

- (16) Test Report      PTB Ex 19-27051
- (17) Specific conditions of use  
none
- (18) Essential health and safety requirements  
Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz  
On behalf of PTB:

Braunschweig, November 18, 2019

  
Dr.-Ing. F. Lienesch  
Direktor und Professor

