



## Mounting and Operating Instructions

**SH 3701 EN**

Edition May 2015

## Definition of signal words



### **DANGER!**

*Hazardous situations which, if not avoided, will result in death or serious injury*



### **WARNING!**

*Hazardous situations which, if not avoided, could result in death or serious injury*



### **NOTICE**

*Property damage message or malfunction*



### **Note:**

*Additional information*



### **Tip:**

*Recommended action*

## Purpose of this manual

The Safety Manual SH 3701 contains information relevant for the use of the Type 3701 Solenoid Valve in safety-instrumented systems according to IEC 61508 and IEC 61511. The safety manual is intended for planners, constructors and operators of safety-instrumented systems.



### **NOTICE**

*Risk of malfunction due to incorrect mounting, connection or start-up of the device. Refer to the Mounting and Operating Instructions EB 3701 on how to mount the positioner, perform the electric and pneumatic connections as well as start up the device. Observe the warnings and safety instructions written in the Mounting and Operating Instructions EB 3701.*

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## Further documentation

The documents listed below contain descriptions of the start-up, functioning and operation of the solenoid valve. You can download these documents from the SAMSOMATIC website. The documents marked with an asterisk (\*) are supplied with the solenoid valve either in printed or electronic form.

- ▶ T 3701: Data sheet
  - ▶ EB 3701\*: Mounting and operating instructions
- 



### **Note:**

*In addition to the solenoid valve documentation, observe the documentation for the pneumatic actuator, valve and other valve accessories.*

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# 1 Scope

## General

The Type 3701 Solenoid Valve converts binary voltage signals into pneumatic control signals. It is used to control pneumatic rotary and linear actuators with spring return mechanism.

## Use in safety-instrumented systems

Observing the requirements of IEC 61508, the systematic capability of the solenoid valve for emergency venting as a component in safety-instrumented systems is given.

Use of the solenoid valve is possible on observing the requirements of IEC 61511 and the required hardware fault tolerance in safety-instrumented systems up to SIL 2 (single device/HFT = 0) and SIL 3 (redundant configuration/HFT = 1).

The individual safety functions of the solenoid valve are to be regarded as Type A elements in accordance with IEC 61508-2.

**Note:**

*The architecture and the interval between proof tests must be changed accordingly for a higher safety integrity level.*

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## Versions and ordering data

All versions of the solenoid valve marked with the prefix **SIL** are suitable for use in safety-instrumented systems. The article code written on the nameplate (page 6) provides details on the optional equipment of the solenoid valve.

Article code

Solenoid valve	Type 3701-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Explosion protection</b>															
No explosion protection	SIL 0														
II 2G Ex ia IIC T6/II 2D Ex tb IIIC T80°C IP65 (ATEX) <sup>1)</sup>	SIL 1														
Ex ia (CSA/FM)	SIL 3														
II 3G Ex nA II T6/ic IIC T6/II 3D Ex tc IIIC T80°C IP65 (ATEX) <sup>2)</sup>	SIL 8														
<b>Nominal signal</b>															
6 V DC	SIL 1														
12 V DC	SIL 2														
24 V DC	SIL 3														
230 V AC	SIL 5														
115 V AC	SIL 6														
48 V AC	SIL 7														
24 V AC	SIL 8														
<b>Switching function</b>															
3/2-way, NC, $K_{VS}^{3)} = 0.25$ , circuit 1	SIL 0														
3/2-way, NO, $K_{VS}^{3)} = 0.25$ , circuit 2	1														
5/2-way, $K_{VS}^{3)} = 0.25$	2														
<b>Attachment</b>															
NAMUR interface for rotary actuators including adapter plate (1400-5235)	SIL 0														
NAMUR rib for linear actuators	SIL 1														
NAMUR adapter plate (1400-5235) additionally required for rotary actuators	SIL 2														
<b>Threaded connection</b>															
G ¼	SIL 1														
¼ NPT	SIL 2														

<sup>1)</sup> EC type examination certificate PTB 01 ATEX 2178

<sup>2)</sup> Statement of conformity PTB 02 ATEX 2014 X

<sup>3)</sup> The air flow rate when  $p_1 = 2.4$  bar and  $p_2 = 1.0$  bar is calculated using the following formula:  
 $Q = K_{VS} \times 36.22$  in  $m^3/h$ .

(continued on page 7)

(continued from page 6)

Solenoid valve	Type 3701-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Electrical connection</b>															
Without cable gland, fitted with blanking plug	SIL 0 0														
Black cable gland M20 x 1.5	SIL 0 1														
Blue cable gland M20 x 1.5	SIL 1 1														
Adapter M20 x 1.5 to ½ NPT	SIL 1 2														
Black CEAG cable gland M20 x 1.5	SIL 1 3														
Cable gland M20 x 1.5, brass	SIL 1 4														
Harting connector, without cable socket	SIL 2 1														
Connector M12 x 1, nickel-plated brass, without cable socket	SIL 2 2														
Connector type A according to DIN EN 175301-803, without cable socket	SIL 2 3														
Binder connector, without cable socket	SIL 2 4														
<b>Degree of protection</b>															
IP 54	SIL 0														
IP 65 with filter check valve made of polyamide	SIL 1														
IP 65 with filter check valve made of stainless steel	SIL 2														
IP 20	SIL 3														
<b>Ambient temperature</b>															
-20 to +80 °C	SIL 0														
-45 to +80 °C	SIL 2														
<b>Safety approval</b>															
Without															0
SIL (only with 3/2-way function)															SIL 1
TÜV (only with 3/2-way function)															2
<b>Special version</b>															
Without															SIL 0 0 0

## Mounting versions

The solenoid valve is suitable for the following types of attachment in combination with various mounting parts:

- Attachment to rotary actuators with NAMUR interface according to VDI/VDE 3845
- Attachment to linear actuators with NAMUR rib according to IEC 60534-6-1
- Pipe mounting

## 2 Technical data

General data	
Version	Solenoid with flapper/nozzle assembly and diaphragm switching element
Control	Electrically controlled on one side (see Electric data, see page 9)
Degree of protection	IP 54 with filter IP 65 with filter check valve
Compressed air quality according to ISO 8573-1	Particle size and density: Class 4 · Oil content: Class 3 · Pressure dew point: Class 3 or at least 10 K below the lowest ambient temperature to be expected
Supply air	Instrument air (free from corrosive substances) or nitrogen
Supply pressure	1.4 to 6.0 bar
Air consumption (binary e/p converter)	≤ 80 l <sub>n</sub> /h at 1.4 bar supply air in neutral position ≤ 10 l <sub>n</sub> /h at 1.4 bar supply air in operating position
Switching time	≤ 65 ms
Electrical connection	Cable entry M20 x 1.5 to screw terminal, two pole or connector



Electric data							
Type 3701	-x1	-x2	-x3	-08	-07	-06	-05
Nominal signal							
$U_N$	6 V DC	12 V DC	24 V DC	24 V AC	48 V AC	115 V AC	230 V AC
$U_{max}^{1)}$	27 V	25 V	32 V	36 V	80 V	130 V	255 V
$f_N$	-			48 to 62 Hz			
Switching point							
$U_{+80^\circ C}$	≥4.8 V	≥9.6 V	≥18 V	19 to 36 V	42 to 80 V	82 to 130 V	183 to 255 V
On							
$I_{+20^\circ C}$	≥1.41 mA	≥1.52 mA	≥1.57 mA	≥1.9 mA	≥1.9 mA	≥2.2 mA	≥2.6 mA
$P_{+20^\circ C}$	≥5.47 mW	≥13.05 mW	≥26.71 mW	≥0.04 VA	≥0.07 VA	≥0.17 VA	≥0.46 VA
Off							
$U_{-25^\circ C}$	≤1.0 V	≤2.4 V	≤4.7 V	≤4.5 V	≤9.0 V	≤18.0 V	≤36.0 V
Impedance							
$R_{+20^\circ C}$	2.6 kΩ	5.5 kΩ	10.7 kΩ	Approx. 10 kΩ	Approx. 24 kΩ	Approx. 40 kΩ	Approx. 80 kΩ
Temperature influence on R	0.4 %/°C	0.2 %/°C	0.1 %/°C	0.1 %/°C	0.1 %/°C	0.05 %/°C	0.03 %/°C
Type of protection Ex ia IIC <sup>2)</sup> for use in hazardous areas (Zone 1)							
Type 3701	-11	-12	-13				
Nominal signal							
$U_N$	6 V DC	12 V DC	24 V DC				
See EC type examination certificate PTB 01 ATEX 2178 for maximum permissible values when connected to a certified intrinsically safe circuit.							
Type of protection Ex nA II <sup>3)</sup> for use in hazardous areas (Zone 2)							
Type 3701	-81	-82	-83				
Nominal signal							
$U_N$	6 V DC	12 V DC	24 V DC				
See statement of conformity PTB 02 ATEX 2014 X for maximum permissible values when connected to a certified intrinsically safe circuit.							

<sup>1)</sup> Maximum permissible value at 100 % duty cycle. The maximum permissible value  $U_i$  applies to explosion-protected versions.

<sup>2)</sup> Marking II 2G Ex ia IIC T6 (gases in Zone 1)/II 2D Ex tb IIIC T 80°C IP65 (dusts in Zone 1).

<sup>3)</sup> Marking II 3G Ex nA II T6/ic IIC T6 (gases in Zone 2)/II 3D Ex tc IIIC T 80°C IP65 (dusts in Zone 2).

Solenoid valve with NAMUR interface			
Type 3701	-xx00	-xx10	-xx20
Switching function	3/2-way function, NC	3/2-way function, NO	5/2-way function
$K_{VS}$ <sup>1)</sup>	0.25	0.25	0.25
Fail-safe action	SIL <sup>2)</sup> , TÜV <sup>3)</sup>	–	–
Version	Diaphragm switching element, soft seated, with return spring		
Material	Body:	AlMg, powder coated, gray beige RAL 1019	
	NAMUR adapter plate:	AlMg, powder coated, gray beige RAL 1019	
	Springs:	Stainless steel 1.4310	
	Screws:	Stainless steel 1.4571	
	Seals:	Silicone rubber, Perbunan <sup>®</sup>	
Diaphragms:	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)		
Operating medium	Instrument air (free from corrosive substances) <sup>4)</sup> Air containing oil or nitrogen or non-corrosive gases <sup>5)</sup>		
Max. operating pressure	6.0 bar		
Output signal	Operating pressure		
Pneumatic connection	G 1/4 or 1/4 NPT and NAMUR interface 1/4"		
Ambient temperature <sup>6)</sup>	–20 to +80 °C (chloroprene rubber) or –45 to +80 °C (silicone rubber)		
Approx. weight	450 g		

<sup>1)</sup> The air flow rate when  $p_1 = 2.4$  bar and  $p_2 = 1.0$  bar is calculated using the following formula:

$$Q = K_{VS} \times 36.22 \text{ in m}^3/\text{h.}$$

<sup>2)</sup> SIL according to IEC 61508

<sup>3)</sup> Emergency release or locking of compressed air supply

<sup>4)</sup> With internal air supply

<sup>5)</sup> With external air supply

<sup>6)</sup> The maximum permissible ambient temperature depends on the permissible ambient temperature of the cable gland, type of protection and temperature class.

Solenoid valve with threaded connection			
Type 3701	-xx01	-xx11	-xx21
Switching function	3/2-way function, NC	3/2-way function, NO	5/2-way function
$K_{VS}$ <sup>1)</sup>	0.25	0.25	0.25
Fail-safe action	SIL <sup>2)</sup> , TÜV <sup>3)</sup>	–	–
Version	Diaphragm switching element, soft seated, with return spring		
Material	Body:	AlMg, powder coated, gray beige RAL 1019	
	Springs:	Stainless steel 1.4310	
	Screws:	Stainless steel 1.4571	
	Seals:	Silicone rubber, Perbunan®	
Diaphragms:	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)		
Operating medium	Instrument air (free from corrosive substances) <sup>4)</sup> Air containing oil, nitrogen or non-corrosive gases <sup>5)</sup>		
Max. operating pressure	6.0 bar		
Output signal	Operating pressure		
Pneumatic connection	G ¼ or ¼ NPT		
Ambient temperature <sup>6)</sup>	–20 to +80 °C (chloroprene rubber) or –45 to +80 °C (silicone rubber)		
Approx. weight	450 g		

<sup>1)</sup> The air flow rate when  $p_1 = 2.4$  bar and  $p_2 = 1.0$  bar is calculated using the following formula:

$$Q = K_{VS} \times 36.22 \text{ in m}^3/\text{h.}$$

<sup>2)</sup> SIL according to IEC 61508

<sup>3)</sup> Emergency release or locking of compressed air supply

<sup>4)</sup> With internal air supply

<sup>5)</sup> With external air supply

<sup>6)</sup> The maximum permissible ambient temperature depends on the permissible ambient temperature of the cable gland, type of protection and temperature class.

Solenoid valve prepared for adapter plate with NAMUR interface			
Type 3701	-xx02	-xx12	-xx22
Switching function	3/2-way function, NC	3/2-way function, NO	5/2-way function
$K_{VS}$ <sup>1)</sup>	0.25	0.25	0.25
Safety function	SIL <sup>2)</sup> , TÜV <sup>3)</sup>	–	–
Version	Diaphragm switching element, soft seated, with return spring		
Material	Body:	AlMg, powder coated, gray beige RAL 1019	
	Springs:	Stainless steel 1.4310	
	Screws:	Stainless steel 1.4571	
	Seals:	Silicone rubber, Perbunan®	
	Diaphragms:	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)	
Operating medium	Instrument air (free from corrosive substances) <sup>4)</sup> Air containing oil, nitrogen or non-corrosive gases <sup>5)</sup>		
Max. operating pressure	6.0 bar		
Output signal	Operating pressure		
Pneumatic connection	G ¼ or ¼ NPT (prepared for adapter plate with NAMUR interface)		
Ambient temperature <sup>6)</sup>	–20 to +80 °C (chloroprene rubber) or –45 to +80 °C (silicone rubber)		
Approx. weight	450 g		

<sup>1)</sup> The air flow rate when  $p_1 = 2.4$  bar and  $p_2 = 1.0$  bar is calculated using the following formula:

$$Q = K_{VS} \times 36.22 \text{ in } m^3/h.$$

<sup>2)</sup> SIL according to IEC 61508

<sup>3)</sup> Emergency release or locking of compressed air supply

<sup>4)</sup> With internal air supply

<sup>5)</sup> With external air supply

<sup>6)</sup> The maximum permissible ambient temperature depends on the permissible ambient temperature of the cable gland, type of protection and temperature class.

### 3 Safety-related functions

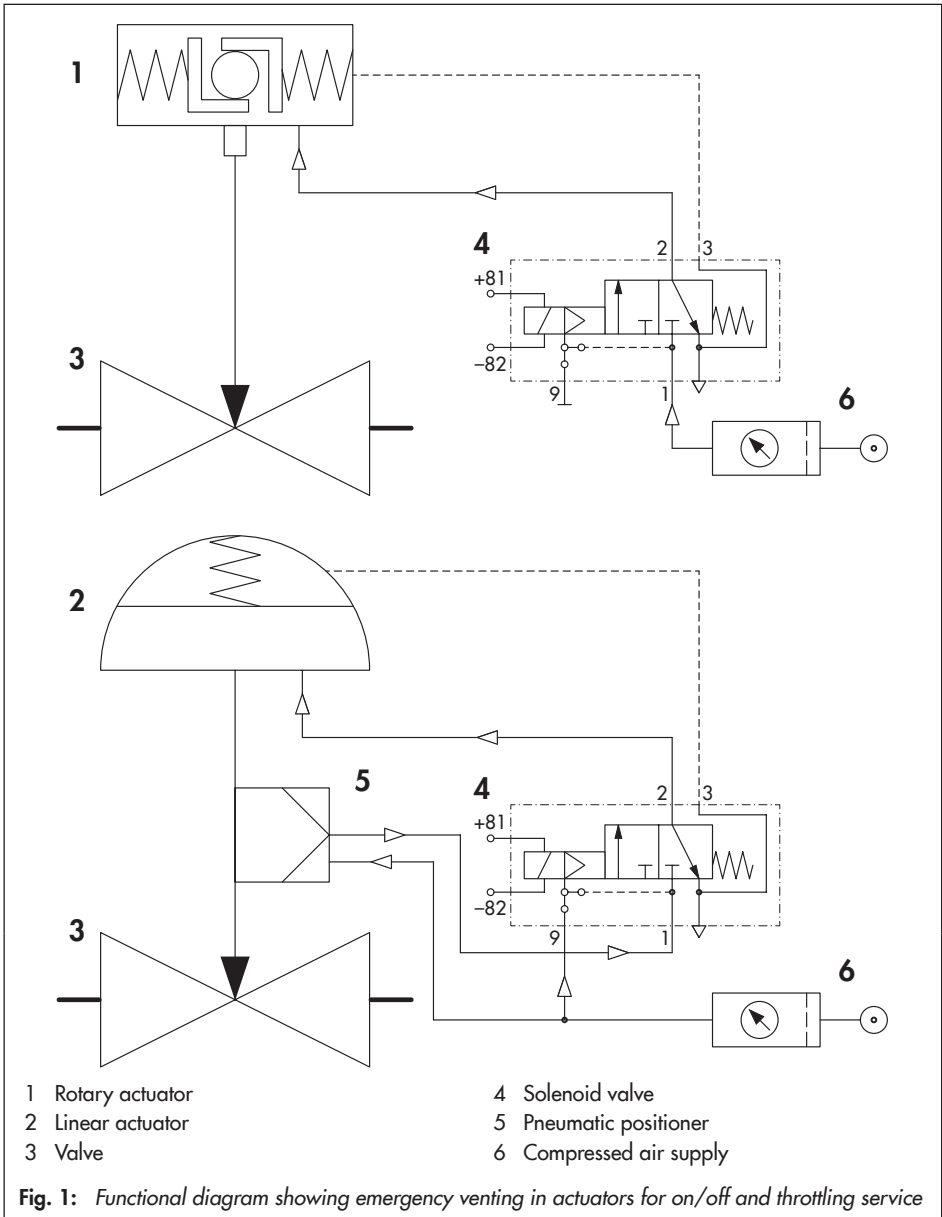
#### Emergency venting

The solenoid valve is energized with a binary voltage signal. Fail-safe action is triggered when no voltage signal (0 V AC/DC) is applied to terminals +81 and -82. The solenoid valve vents to the atmosphere and the actuator is vented as well (see Fig. 1, page 14).

#### Fail-safe action

Fail-safe action is triggered by the solenoid valve and upon supply air failure.

The solenoid valve fully discharges its pneumatic output to the atmosphere, causing the mounted actuator to be vented. As a result, the valve moves to the fail-safe position. The fail-safe position depends on how the springs are arranged in the pneumatic actuator (air-to-close or air-to-open).



## 4 Mounting, connection and start-up

Refer to *Mounting and Operating Instructions* ► EB 3701 on how to mount, perform the electric and pneumatic connections as well as start up the solenoid valve.

Only use original mounting parts and accessories.

## 5 Required conditions



### **WARNING!**

*Risk of malfunction due to incorrect selection or wrong installation and operating conditions.*

*Only use control valves in safety-instrumented systems after the necessary conditions in the plant have been fulfilled. This also applies to the mounted solenoid valve.*

### Selection

- The required transit times of the control valve are kept.  
The transit times to be implemented are determined by the process engineering requirements.
- The solenoid valve is suitable for the prevailing ambient temperature.

Versions	Temperature range
With diaphragm and seals made of chloroprene rubber	-20 to +80 °C
With diaphragm and seals made of silicone rubber	-45 to +80 °C
With plastic cable gland	-20 to +80 °C
With metal cable gland	-45 to +80 °C
<b>The specifications in the test certificates additionally apply to explosion-protected versions.</b>	

- The temperature limits are observed.

### Mechanical and pneumatic installation

- The solenoid valve is mounted properly as described in the mounting and operating instructions and connected to the air supply.
- The maximum supply pressure does not exceed 6.0 bar.
- The pneumatic air supply meets the instrument air specifications.

Particle size and quantity	Oil content	Pressure dew point
Class 4	Class 3	Class 3
≤5 µm and 1000/m <sup>3</sup>	≤1 mg/m <sup>3</sup>	-20 °C or at least 10 K below the lowest ambient temperature to be expected



**Tip:**

We recommend installing a pressure reducing valve/filter (e.g. SAMSOMATIC Type 3999-009x Service Unit or Type 3999-0096 Filter Regulator) upstream of the solenoid valve.

- The external supply air line (9) has a minimum inside diameter of 4 mm and the internal supply air line (4) has a minimum inside diameter of 8 mm. See "Sizing of the connecting line" in the mounting and operating instructions ► EB 3701.
- Select the cross section and length of the line to ensure that the supply pressure at the positioner on filling the actuator with air does not fall below the minimum limit of 1.4 bar.
- The solenoid valve is mounted as prescribed.
- The exhaust opening at the solenoid valve remains open when the solenoid valve is installed on site.

**Electrical installation**

- The solenoid valve is mounted properly as described in the mounting and operating instructions and connected to the electric power supply.
- Only cables whose outside diameters are suitable for the cable glands are used.
- The electrical cables in Ex i circuits comply with the data that planning was based on.
- The cable glands and enclosure cover screws are fastened tightly to ensure that the degree of protection is met.
- The installation requirements for the applicable explosion protection measures are observed.
- The special conditions specified in the explosion protection certificates are observed.

## 6 Proof testing

The proof test interval and the extent of testing lie within the operator's responsibility. The operator must draw up a test plan, in which the proof tests and the interval between them are specified. We recommend summarizing the requirements of the proof test in a checklist.



**WARNING!**

*Risk of dangerous failure due to malfunction in the event of emergency (actuator is not vented or the valve does not move to the fail-safe position).*

*Only use devices in safety-instrumented systems that have passed the proof test according to the test plan drawn up by the operator.*

---

Regularly check the safety-instrumented function of the entire SIS loop. The test intervals are determined, for example on calculating each single SIS loop in a plant ( $PFD_{avg}$ ).

### Function test

Regularly check the safety function according to the test plan drawn up by the operator.

Refer to the SIL proof test when large deviations occur or any other irregularities. The necessary documentation for this is provided by SAMSOMATIC.

The SIL proof test can be performed by SAMSOMATIC on request.



**Note:**

*Record any faults in the solenoid valve and inform SAMSOMATIC of them in writing.*

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- In case of internal supply air, air with the permissible operating pressure from 1.4 to 6.0 bar is applied to port 4.  
In case of external supply air, air with the maximum operating pressure of 6.0 bar or the maximum available operating pressure must be applied to port 4. On using an upstream positioner, adjust it so that the maximum output pressure is available at the positioner output.
- Apply the nominal voltage  $U_N$  specified on the nameplate to the solenoid valve.
- Check whether the valve moves to its end position on demand.
- De-energize the solenoid valve.  
Check whether the actuator is fully vented within the demanded time (fail-safe position).

**Tip:**

*Connect a pressure gauge to check that the actuator has completely vented.*

- Record the valve transit time and compare it to the time the valve took at start-up and during proof tests.

**Visual inspection to avoid systematic failure**

To avoid systematic failure, inspect the solenoid valve regularly. The frequency and the scope of the inspection lie within the operator's responsibility. Take application-specific influences into account, such as:

- Dirt blocking the pneumatic connections
- Corrosion (destruction primarily of metals due to chemical and physical processes)
- Material fatigue
- Aging (damage caused to organic materials, e.g. plastics or elastomer, by exposure to light and heat)
- Chemical attack (organic materials, e.g. plastics or elastomer, which swell, leach out or decompose due to exposure to chemicals)

**NOTICE**

*Risk of malfunction due to the use of unauthorized parts.*

*Only use original parts to replace worn parts.*

### 7 Repairs

Only perform the work on the solenoid valve described in ► EB 3701.

Only use the specified original mounting parts.

## Herstellererklärung

Für folgende Produkte

Magnetventile der Typen 3701, 3963, 3968, 3776 und 3756 mit SIL-Kennzeichnung

Hiermit wird bestätigt, dass die o. g. Magnetventile gemäß IEC 61508 für den Einsatz in sicherheitsgerichteten Kreisen geeignet sind. Die Geräte haben eine HFT von 0 und können nach IEC 61511 bis SIL 2 (einzelnes Gerät, HFT = 0) und SIL 3 (redundante Verschaltung, HFT = 1) eingesetzt werden.

Die Konformität des Entwicklungsprozesses, der durchgeführten FMEDA und der Aussagen dieser Herstellererklärung sind von der TÜV Rheinland Industrie Service GmbH durch das Zertifikat V60.09/14 vom 27. November 2014 zertifiziert.

### Nutzbare Lebensdauer

Nach IEC 61508-2, Abschnitt 7.4.9.5 können acht bis zwölf Jahre angenommen oder ein Wert benutzt werden, der sich durch Betriebsbewährung des Anwenders ergibt.

### Sicherheitstechnische Kenndaten

$\lambda_{safe, undetected}$	16 FIT
$\lambda_{safe, detected}$	0
$\lambda_{dangerous, undetected}$	2 FIT
$\lambda_{dangerous, detected}$	0
PFD <sub>avg, bei jährlicher Prüfung</sub>	$7,79 \cdot 10^{-6}$
HFT (Hardware Fault Tolerance)	0
DC (Diagnostic Coverage)	0 %
Gerätetyp	A
Betriebsmodus	Low Demand
SFF (Safe Failure Fraction)	90 %
MTBF <sub>gesamt</sub>	6.416 Jahre
MTBF <sub>dangerous, undetected</sub>	64.156 Jahre

1 FIT = 1 Ausfall pro  $10^9$  Stunden

### Bestimmungsgemäße Verwendung

- Bedienungsanleitung
- Sicherheitshandbuch

## Manufacturer's Declaration

For the following products

Types 3701, 3963, 3968, 3776 and 3756 Solenoid Valves with SIL marking

We hereby certify that the solenoid valves mentioned above are suitable for use in safety-instrumented systems according to IEC 61508. The devices have an HFT of 0 and can be used up to SIL 2 (single device, HFT = 0) and SIL 3 (redundant configuration, HFT = 1) according to IEC 61511.

The conformity of the development process and the performed FMEDA as well as the statements in this Manufacturer's Declaration are certified by TÜV Rheinland Industrie Service GmbH in the Certificate V60.09/14 of 27 November 2014.

### Useful lifetime

According to IEC 61508-2, section 7.4.9.5, a useful lifetime of eight to twelve years can be assumed. Other values can be used based on the user's previous experience (prior use/proven-in-use).

### Safety-related data

$\lambda_{safe, undetected}$	16 FIT
$\lambda_{safe, detected}$	0
$\lambda_{dangerous, undetected}$	2 FIT
$\lambda_{dangerous, detected}$	0
PFD <sub>avg, with annual test</sub>	$7,79 \cdot 10^{-6}$
HFT (Hardware Fault Tolerance)	0
DC (Diagnostic Coverage)	0 %
Device type	A
Mode of operation	Low demand
Safe failure fraction (SFF)	90 %
MTBF <sub>total</sub>	6.416 years
MTBF <sub>dangerous, undetected</sub>	64.156 years

1 FIT = 1 failure per  $10^9$  hours

### Intended use

- Operating instructions
- Safety manual

<b>Manufacturer's Declaration</b>	Changed on: 2013-07-10	2013-01-11	2015-01-29
<b>V/IE-1187-3 DE-EN</b>	Changed by: SC/Bzr/V74/Tny	SC/Bzr/V74/Tny	SC/Mis/V74/Tny

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- Anforderungen an Instrumentenluftqualität (siehe Sicherheitshandbuch)

### Sicherheitstechnische Annahmen

Bei Unterbrechung des elektrischen Signals oder Ausfall der pneumatischen Hilfsenergie schaltet der pneumatische Verstärker seinen Ausgang zur Atmosphäre durch und entlüftet dadurch den angeschlossenen Ventiltrieb.

### Voraussetzungen

Die Reparaturzeit ist klein gegenüber der mittleren Anforderungsrate.  
Durchschnittliche Beanspruchung in industrieller Umgebung durch Medien und Umgebungsbedingungen wird vorausgesetzt.  
Der Anwender ist für den bestimmungsgemäßen Gebrauch verantwortlich.

- Quality requirements for instrument air (refer to safety manual)

### Safety-related assumptions

When the power supply or the supply pressure fail, the pneumatic booster discharges its output to the atmosphere, thus venting the mounted actuator.

### Requirements

Short mean time to repair compared to the average rate of demand.  
Normal exposure to industrial environment and fluids is assumed.  
The user is responsible for ensuring that the device is used as intended.

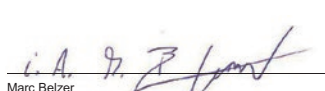
SAMSOMATIC GmbH



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Marc Belzer  
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Product Management  
Solenoid Valves

<b>Manufacturer's Declaration</b> <b>V/HE-1187-3 DE-EN</b>	Changed on:	2013-07-10	2013-01-11	2015-01-29
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