SAFETY MANUAL

SH 3756 EN

Translation of original instructions

Type 3756 Booster Valve

SIL/PL Capability

TÜVRheinland CERTIFIED

www.tuv.com ID 0600000000

Edition April 2023

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 3756 contains information relevant for the use of the Type 3756 Booster 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 booster valve.

Refer to the Mounting and Operating Instructions EB 3756 on how to mount the device, perform the pneumatic connections as well as start up the device.

➔ *Observe the warnings and safety instructions written in the Mounting and Operating Instructions EB 3756.*

Further documentation

The documents listed below contain descriptions of the start-up, functioning and operation of the booster valve. You can download these documents from the SAMSON website.

- T 3756: Data sheet
- EB 3756: Mounting and operating instructions

Note

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

Contents

1 Scope

1.1 General

The Type 3756 Booster Valve is used to control single- and double-acting pneumatic actuators and to boost pneumatic binary signals. The versions which are suitable for the use in safety-instrumented systems consist of a body with a diaphragm element actuated on one side with return spring.

1.2 Use in safety-instrumented systems

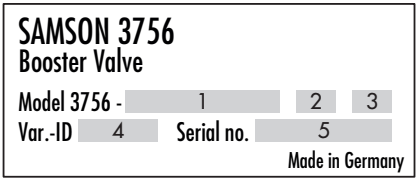
Observing the requirements of IEC 61508, the systematic capability of the pilot valve for releasing or locking the compressed air supply as a component in safety-instrumented systems is given.

Use of the booster 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).

The booster valve is regarded as a type A device according to IEC 61508-2 in view of its safety functions.

1.3 Versions and ordering data

Not all versions of the Type 3756 Booster Valve are suitable for use in safety-instrumented systems. The article code can be used to help identify booster valves that are suitable (see nameplate): "**1**" must appear as the fourth last digit in this case.



1 Article code
2 Device index
3 Safety approval
4 Configuration ID
5 Serial number

Booster valve	Type 3756-	x	x	x	x	x	x	x	x	x	x	x
Actuation												
Pneumatic	SIL	0										
Over CNOMO interface	SIL	1										
With Type 3963 Solenoid Valve (as spare part)	SIL	2										
With Type 3967 Solenoid Valve	SIL	3										
Over NAMUR interface ¼ acc. to VDI/VDE 3845	SIL	4										
Over NAMUR interface ¼ acc. to VDI/VDE 3847	SIL	5										
Switching function												
3/2-way function with spring-return mechanism	SIL		0									
5/2-way function with spring-return mechanism			1									
5/2-way function with two detent positions			2									
5/3-way function with spring-centered mid-position (ports 2 and 4 closed)			3									
5/3-way function with spring-centered mid-position (ports 2 and 4 supplied with air)			4									
5/3-way function with spring-centered mid-position (ports 2 and 4 vented)			5									
6/2-way function with spring-return mechanism			6									
3/2-way function with spring-return mechanism (open in neutral position)	SIL		7									
Redundancy connection (article definition in combination with "Special version" property)			9									
Attachment												
NAMUR interface according to VDI/VDE 3845	SIL			0								
Threaded connection	SIL			1								
K_{VS} [1]												
1.4					0							
4.3	SIL				1							
2.9					2							
2.0	SIL				3							
1.9	SIL				5							
Connection												
G ¼	SIL					0						
¼ NPT	SIL					1						
G ½	SIL					2						
½ NPT	SIL					3						
G 1						6						

Ambient temperature [2]													
–20 to +80 °C	**SIL**						0						
–45 to +80 °C	**SIL**						1						
–40 to +80 °C							2						
Material													
Aluminum	**SIL**							0					
Stainless steel	**SIL**							1					
Safety approval													
Without									0				
SIL [3]	**SIL**								1				
TÜV [4]									2				
Special version													
Without										0	0	0	
Emergency venting; series connection (1oo2 redundancy)	**SIL**	5	9	0						0	1	0	
Emergency air supply; parallel connection (2oo2 redundancy)	**SIL**	5	9	0						0	1	1	

1) 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 m³/h.
2) The maximum permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.
3) SIL according to IEC 61508
4) Emergency release or locking of compressed air supply

2 Mounting

The booster valve is mounted between the actuator and the device actuating it. It is suitable for the following types of attachment:

– Attachment according to NAMUR interface according to VDI/VDE 3845
– Attachment using threaded connection

3 Technical data: Type 3756 Booster Valve with SIL approval

Booster valve with threaded connection, K_{VS} 4.3, actuated on one side				
Switching function		3/2-way function (closed in neutral position)		
K_{VS} [1] (direction of flow)		1.9 (4»3), 1.5 (3»4), 4.3 (3»5), 4.7 (5»3)		
Safety approval		SIL [2], TÜV [3]		
Design		Poppet valve with diaphragm actuator, soft seated, with return spring		
Material	Body	Aluminum, powder coated, gray beige RAL 1019 or stainless steel 1.4404		
	Diaphragms	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)		
	Seals	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)		
	Screws	Stainless steel 1.4571		
	Springs	Stainless steel 1.4310		
Operating medium		Instrument air (free from corrosive substances) or nitrogen, air containing oil or non-corrosive gases		
Compressed air quality acc. to ISO 8573-1		Max. 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		
Actuation, control pressure, switching points		Pneumatic connection G ¼ or ¼ NPT	1.4 to 3 bar	≤0.2 bar (switchover to neutral position), ≥1.4 bar (switchover to operating position)
		CNOMO interface	1.4 to 10 bar [4]	
		Type 3963 Solenoid Valve	1.4 to 6 bar	
Max. operating pressure		10.0 bar		
Ambient temperature [5]		–20 to +80 °C –45 to +80 °C		
Connection		G ¼ or ¼ NPT		
Approx. weight		0.58 kg		

1) 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.
2) SIL according to IEC 61508
3) Emergency release or locking of compressed air supply
4) The permissible control pressure with the CNOMO interface depends on the pilot valve used.
5) The maximum permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.

Booster valve with NAMUR interface, K_{VS} 2.0 or 4.3, actuated on one side			
Switching function		3/2-way function	
K_{VS} [1] (direction of flow)		1.1 (4»3) 2.0 (3»5)	1.9 (4»3) 4.3 (3»5)
Safety approval		SIL [2], TÜV [3]	
Design		Poppet valve with diaphragm actuator, soft seated, with return spring	
Material	Body	Aluminum, powder coated, gray beige RAL 1019 or stainless steel 1.4404	
	Diaphragms	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)	
	Seals	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)	
	Screws	Stainless steel 1.4571	
	Springs	Stainless steel 1.4310	
Operating medium		Instrument air (free from corrosive substances) or nitrogen, air containing oil or non-corrosive gases	
Compressed air quality acc. to ISO 8573-1		Max. 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	
Actuation, control pressure, switching points		Pneumatic connection G ¼ or ¼ NPT — 1.4 to 3 bar	≤0.2 bar (switchover to neutral position), ≥1.4 bar (switchover to operating position)
		CNOMO interface — 1.4 to 10 bar [4]	
		Type 3963 Solenoid Valve — 1.4 to 6 bar	
		Type 3967/3969 Solenoid Valve — 1.4 to 10 bar	
Max. operating pressure		10.0 bar	
Ambient temperature [5]		–20 to +80 °C –45 to +80 °C	
Connection	Supply	G ¼ or ¼ NPT and NAMUR interface ¼ [6] with G ⅜ (⅜ NPT)	G ½ or ½ NPT and NAMUR interface ½ [6]
	Exhaust	G ½ or ½ NPT and NAMUR interface ¼ [6] with G ⅜ (⅜ NPT)	G ½ or ½ NPT and NAMUR interface ½ [6]
Approx. weight		1.38 kg	1.5 kg

1) 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 m³/h.
2) SIL according to IEC 61508
3) Emergency release or locking of compressed air supply
4) The permissible control pressure with the CNOMO interface depends on the pilot valve used.
5) The maximum permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.
6) NAMUR interface according to VDI/VDE 3845

Booster valve with NAMUR interface, K_{VS} 1.9, actuated on both sides (redundancy)			
Switching function		3/2-way function (series connection · emergency venting)	3/2-way function (parallel connection · emergency supply)
K_{VS} [1]		1.9	
Safety approval		SIL [2]	
Design		Poppet valve with diaphragm actuator, soft seated, with return spring	
Material	Body	Aluminum, powder coated, gray beige RAL 1019 or stainless steel 1.4404	
	Diaphragms	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)	
	Seals	Chloroprene rubber (–20 to +80 °C) or silicone rubber (–45 to +80 °C)	
	Screws	Stainless steel 1.4571	
	Springs	Stainless steel 1.4310	
Operating medium		Instrument air (free from corrosive substances) or nitrogen, air containing oil or non-corrosive gases	
Compressed air quality acc. to ISO 8573-1		Max. 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	
Actuation, control pressure, switching points		Type 3963 Solenoid Valve 1.4 to 6 bar	
		Type 3967/3969 Solenoid Valve 1.4 to 10 bar	
Max. operating pressure		10.0 bar	
Ambient temperature [3]		–20 to +80 °C –45 to +80 °C	
Connection		G ½ or ½ NPT and NAMUR interface ½ [4]	
Approx. weight		2.2 kg	

[1] 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 m³/h.

[2] SIL according to IEC 61508

[3] The maximum permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.

[4] NAMUR interface according to VDI/VDE 3845

4 Safety-related functions

The booster valve is actuated by a pneumatic signal. The valve is actuated either over a hook-up to a pneumatic connection (G ¼ or ¼ NPT), a CNOMO interface, by a SAMSON Type 3963 Solenoid Valve (3963 interface) or by SAMSON Types 3967 and 3969 Solenoid Valves (Type 3967/3969 interface). During pneumatic actuation, pressure is applied to the switching diaphragm of the booster valve, the booster valve switches to the operating position. If no pneumatic signal is applied at the signal input, fail-safe action is triggered and the booster valve is switched to the neutral position by a return spring.

4.1 Fail-safe action

Fail-safe action is triggered by the pneumatic control signal and upon supply air failure. When the pneumatic control signal decreases, the pressure at the switching diaphragm of the booster is reduced and the booster valve switches to the neutral position. This causes the pneumatic actuator to be vented and the valve to move to its 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).

4.2 Protection against unauthorized changes to the configuration

A change to the configuration cannot affect the safety function nor cause it to be deactivated.

5 Mounting, connection and start-up

Refer to Mounting and Operating Instructions ▶ EB 3756 on how to mount, perform the pneumatic connection as well as start up the booster valve.
Only use the specified original mounting parts and accessories.

6 Required conditions

⚠ WARNING

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

➔ *Only use control valves in safety-instrumented systems if the necessary conditions in the plant are fulfilled. This also applies to the mounted booster valve.*

6.1 Selection

➔ The required transit times of the control valve are observed.
The transit times to be implemented are determined by the process engineering requirements.

➔ The booster valve is suitable for the prevailing ambient temperature.

Versions	Temperature range
Type 3756-xxxxx0x1xxx	–20 to +80 °C
Type 3756-xxxxx1x1xxx	–45 to +80 °C
The maximum permissible ambient temperature depends on the permissible ambient temperature of the components, type of protection and temperature class.	

➔ The temperature limits are observed.

6.2 Mechanical and pneumatic installation

➔ The booster 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 10 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/m³	≤ 1 mg/m³	at least 10 K below the lowest ambient temperature to be expected

Tip

We recommend installing a supply pressure regulator/filter upstream of the device. For example, Type 3999-009x Service Unit or Type 3999-0096 Filter Regulator can be used.

➔ The minimum inside diameter of the supply air line is observed.

	Supply air port Port 1 (K_{VS} 1.9) Port 4 (K_{VS} 2.0 and 4.3)
Pipe (outside diameter x wall thickness)	12x1
Hose (inside diameter x wall thickness)	9 x 3
For pilot-actuated booster valves, these specifications apply to a connecting line shorter than 2 m. Use a larger nominal size for lines longer than 2 m.	

Select the cross section and length of the line to ensure that the supply pressure (see section 3) at the device on supplying air does not fall below the minimum limit.

➔ The booster valve is mounted as prescribed.

7 Proof testing (periodic)

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}).

7.1 Visual inspection to avoid systematic failure

To avoid systematic failure, inspect the booster 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 elastomers, 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.*

7.2 Function testing

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 SAMSON.

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

Note

Record any booster valve faults and e-mail (aftersalesservice@samsongroup.com) them to SAMSON.

➔ Apply the permissible operating pressure (see section 3) to port 1 (K_{VS} 1.9) or port 4 (K_{VS} 2.0 and 4.3) of the booster valve.

➔ When an upstream positioner is used, adjust it in such a way 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).

Proof test

A full stroke test must be performed as the proof test. The following value can be used for Proof Test Coverage to calculate PFD_{avg}:

PTC (Proof Test Coverage) = 95 % for a proof test

8 Maintenance and repair

Only perform the work on the booster valve described in ▶ EB 3756.

NOTICE

Safety function impaired due to incorrect repair.

➔ *Only allow trained staff to perform service and repair work.*

For devices operated in the low demand mode, a useful lifetime of 11 years (plus 1.5 years storage time) is confirmed by TÜV Rheinland® from the date of manufacture while taking into account the specific conditions of use specified in the Safety Manual and the Mounting and Operating Instructions.

The results of the proof test must be assessed and the maintenance scheduled based on it. In particular, after changes (e.g. signs of aging in elastomers, changed switching times or leakage etc.), it is essential that the manufacturer performs maintenance or repair work on the device.

MTC (Maintenance Coverage) > 99 %

9 Safety-related data and certificates

The safety-related data are listed in the following certificate.

Certificate

SIL/PL Capability

www.tuv.com
ID 0600000000

No.: 968/V 1160.02/21

Product tested	Electromagnetic control, solenoid, booster valves and electrical position feedback	**Certificate holder**	SAMSON AG Weismüllerstr. 3 60314 Frankfurt / Main Germany
Type designation	3963, 3967, 3964, 3756, 3701, 3968, 3776 (with option solenoid valve as well as safe indication of end positions)		
Codes and standards	IEC 61508 Parts 1-2 and 4-7:2010		
Intended application	Safety Function: Safe venting (and safe indication of end positions) The test items are suitable for use in a safety instrumented system up to SIL 2 (low demand mode). Under consideration of the minimum required hardware fault tolerance HFT = 1 the valves may be used in a redundant architecture up to SIL 3 according to IEC 61508 and IEC 61511-1:2016 + AMD1:2017.		
Specific requirements	The instructions of the associated Installation, Operating and Safety Manual shall be considered.		

Summary of test results see back side of this certificate.

The issue of this certificate is based upon an evaluation in accordance with the Certification Program CERT FSP1 V1.0:2017 in its actual version, whose results are documented in Report No. 968/V 1160.02/21 dated 2021-09-08. This certificate is valid only for products, which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Bereich Automation
Funktionale Sicherheit

Köln, 2021-09-13

Certification Body Safety & Security for Automation & Grid

Dipl.-Ing. (FH) Wolf Rückwart

www.fs-products.com
www.tuv.com

TÜVRheinland®
Precisely Right.

TÜVRheinland®
Precisely Right.

Holder: **SAMSON AG**
Weismüllerstraße 3
60314 Frankfurt am Main
Germany

Product tested: **Electromagnetic control, solenoid and booster valves of the types**
3963, 3967, 3964, 3756, 3701, 3968 [4],
3776 (with option "solenoid valve" as well as "safe indication of end positions")

Results of Assessment

Route of Assessment		2_H / 1_S
Type of Sub-system		Type A
Mode of Operation		Low Demand Mode

Safe venting - Type 3701, 3963, 3967, 3776 (with option solenoid valve)

Hardware Fault Tolerance	HFT	0	
Lambda Dangerous Undetected [1]	λ_{DU}	8.02 E-08 / h	80 FIT
Average Probability of Failure on Demand [2]	**$PFD_{avg}(T_1)$**	**3.51 E-04**	

Safe indication of end positions - Type 3776 (only with inductive proximity switches)

Hardware Fault Tolerance	HFT	0	
Lambda Dangerous Undetected [1]	λ_{DU}	7.35 E-08 / h	74 FIT
Average Probability of Failure on Demand [2]	**$PFD_{avg}(T_1)$**	**3.22 E-04**	

Safe venting - Type 3756

Hardware Fault Tolerance	HFT	0 (1 as variant, see report)	
Lambda Dangerous Undetected [1]	λ_{DU}	8.38 E-08 / h	84 FIT
Average Probability of Failure on Demand [2]	**$PFD_{avg}(T_1)$**	**3.67 E-04**	
Average Probability of Failure on Demand 1oo2 [3]	**$PFD_{avg}(T_1)$**	**3.69 E-05**	

Safe venting - Type 3964 pilot valve

Hardware Fault Tolerance	HFT	0	
Lambda Dangerous Undetected [1]	λ_{DU}	5.12 E-09 / h	5 FIT
Average Probability of Failure on Demand [2]	**$PFD_{avg}(T_1)$**	**2.24 E-05**	

[1] assumed Diagnostic Coverage DC = 0 %
[2] assumed Proof Test Interval T_1 = 1 year
[3] assumed Proof Test Interval T_1 = 1 year and β_{1oo2} = 10 %
[4] The solenoid valve manifold of type 3968 is a combination of the control valves 3756 and the pilot valves 3964. The failure rates must be determined for each individual applicationfrom the given characteristic values of the single components.

Origin of values

The stated failure rates are the result of an FMEDA with tailored failure rates for the design and manufacturing process.
Furthermore the results have been verified by qualification tests and field-feedback data of the last 5 years.
Failure rates include failures that occur at a random point in time and are due to degradation mechanisms such as ageing.
The stated failure rates do not release the end-user from collecting and evaluating application-specific reliability data.

Systematic Capability

The development and manufacturing process and the functional safety management applied by the manufacturer in the relevant lifecycle phases of the product have been audited and assessed as suitable for the manufacturing of products for use in applications with a maximum Safety Integrity Level of 3 (SC 3).

Periodic Tests and Maintenance

The given values require periodic tests and maintenance as described in the Safety Manual.
The operator is responsible for the consideration of specific external conditions (e.g. ensuring of required quality of media, max. temperature, time of impact), and adequate test cycles.

TÜV Rheinland Industrie Service GmbH, Am Grauen Stein, 51105 Köln / Germany

Revision List
referred to on Certificate No.: 968/V 1160.02/21
Certified Product: Electromagnetic control, solenoid, booster valves and electrical position feedback

TÜVRheinland®
Precisely Right.

Safety related modules / components

Type Designation	Description	Report–No.:	Certification Status
3963	Solenoid valve	968/V 1160.00/20	*Valid*
3967	Solenoid valve	968/V 1160.00/20	*Valid*
3964	Solenoid valve	968/V 1160.00/20	*Valid*
3756	Solenoid valve	968/V 1160.00/20	*Valid*
3701	Solenoid valve	968/V 1160.00/20	*Valid*
3968	Solenoid valve	968/V 1160.00/20	*Valid*
3776	Limit switch (with option solenoid valve as well as safe indication of end positions)	968/V 1160.00/20	*Valid*

SAMSON AG
Weismüllerstraße 3
60314 Frankfurt am Main

TÜV Rheinland Industrie Service GmbH
Automation - Functional Safety (A-FS)
Am Grauen Stein
51105 Köln / Germany

Revision List
referred to on Certificate No.: 968/V 1160.02/21
Certified Product: Electromagnetic control, solenoid, booster valves and electrical position feedback

TÜVRheinland®
Precisely Right.

Manufacturing locations

Type Designation	Description	Report–No.:	Certification Status
SAMSON AG	Weismüllerstraße 3 60314 Frankfurt am Main	968/V 1160.00/20	*Valid*
SAMSON REGULATION S.A.S.	1 rue Jean Corona 69120 Vaulx-en-Velin France	968/V 1160.02/21	*Valid*

Safety Manual

Document No.	Description	Report–No.:	Certification Status
SH_3963.pdf	Safety manual for type 3963	968/V 1160.00/20	*Valid*
SH_3967.pdf	Safety manual for type 3967	968/V 1160.00/20	*Valid*
SH_3701.pdf	Safety manual for type 3701	968/V 1160.00/20	*Valid*
e3756sde.pdf	Safety manual for type 3756	968/V 1160.00/20	*Valid*
e3964sde.pdf	Safety manual for type 3964	968/V 1160.00/20	*Valid*
e3776sde.pdf	Safety manual for type 3776	968/V 1160.00/20	*Valid*
e3968sde.pdf	Safety manual for type 3968	968/V 1160.00/20	*Valid*

The content of this Revision List has been agreed between Manufacturer and Certification Body.

Revision List
referred to on Certificate No.: 968/V 1160.02/21
Certified Product: Electromagnetic control, solenoid, booster valves and electrical position feedback

TÜVRheinland®
Precisely Right.

Revision:

Date	Rev.	Description / Changes	Author
2021-09-08	1.0	Initial creation, based on Report-No.: 968/V 1160.02/21	JCz/A-FS

SAMSON AG
Weismüllerstraße 3
60314 Frankfurt am Main

TÜV Rheinland Industrie Service GmbH
Automation - Functional Safety (A-FS)
Am Grauen Stein
51105 Köln / Germany

SH 3756 EN

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
samson@samsongroup.com · www.samsongroup.com

2023-04-05 · English