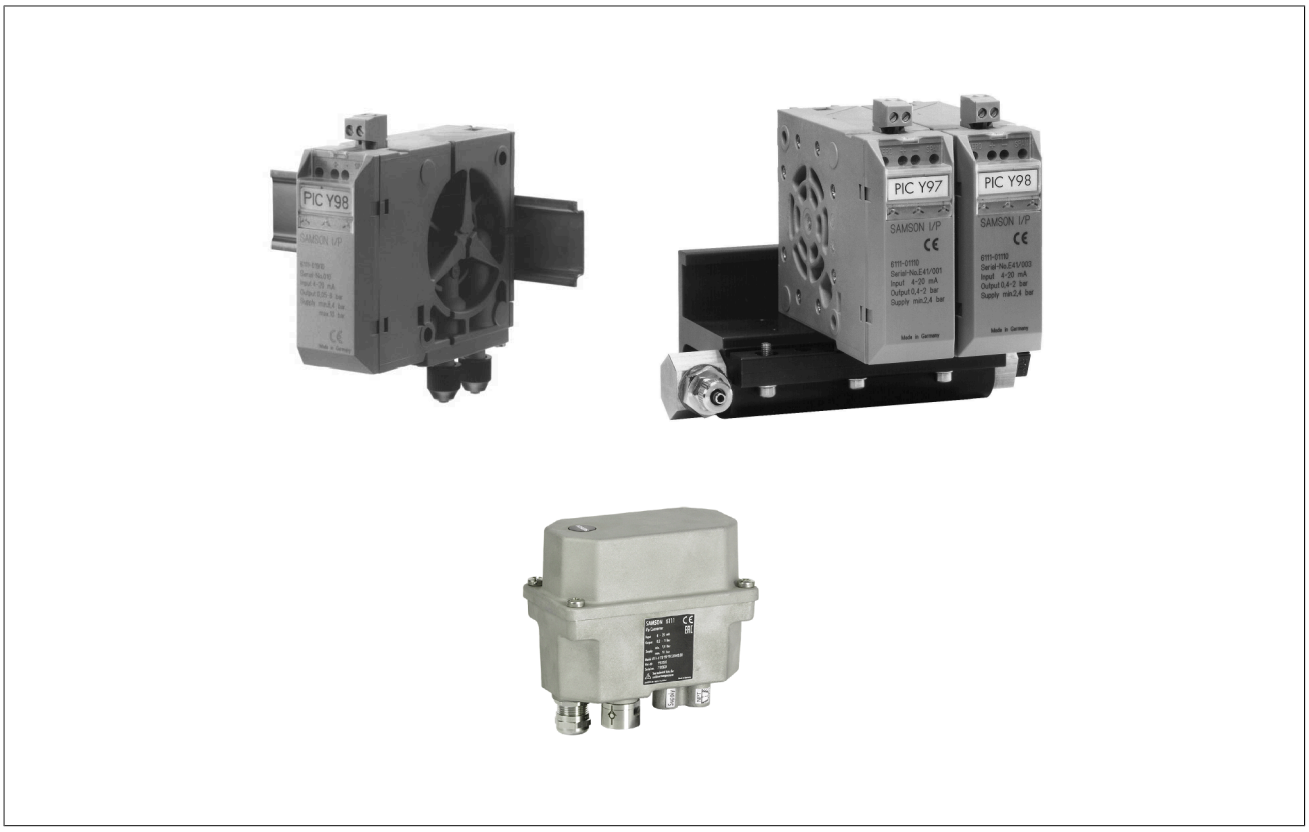
MOUNTING AND OPERATING INSTRUCTIONS

EB 6111 EN

Translation of original instructions



Type 6111 i/p Converter
Electropneumatic Converter for Direct Current Signals

CE Ex certified

Edition May 2026

Note on these mounting and operating instructions

These mounting and operating instructions (EB) assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in this document are for illustration purposes only. The actual product may vary.

⇨ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

⇨ If you have any additional questions not related to the contents of this document, contact SAMSON's After-sales Service (aftersalesservice@samsongroup.com).

Documents relating to the device, such as the mounting and operating instructions, are available on our website:
▶ https://www.samsongroup.com/en/downloads/documentation

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

1 Safety instructions and measures ... 5
1.1 Notes on possible severe personal injury ... 6
1.2 Notes on possible personal injury ... 6
1.3 Notes on possible property damage ... 7

2 Markings on the device ... 8
2.1 Nameplate ... 8
2.2 Article code ... 9

3 Design and principle of operation ... 11
3.1 Variants ... 13
3.2 Technical data ... 15
3.3 Ex approvals ... 16
3.4 Dimensions ... 16

4 Shipment and on-site transport ... 20
4.1 Accepting the delivered goods ... 20
4.2 Removing the packaging from the converter ... 20
4.3 Transporting the converter ... 20
4.4 Lifting the converter ... 20
4.5 Storing the converter ... 20

5 Mounting ... 21
5.1 Installation conditions ... 21
5.1.1 Work position ... 21
5.1.2 Mounting position ... 21
5.2 Preparation for installation ... 21
5.3 Installing i/p converters ... 21
5.3.1 Installing the rail-mounting unit ... 21
5.3.2 Installing the field unit ... 21
5.3.3 Mounting the supply air manifold for rail-mounting units ... 21
5.3.3.1 Fastening the supply air manifold ... 23
5.3.3.2 Assembling the supply air manifold ... 23
5.3.3.3 Connecting several supply air manifolds ... 23
5.3.3.4 Mounting the i/p converter on the manifold ... 23
5.4 Electrical connection ... 25
5.5 Pneumatic connection ... 26
5.5.1 Connecting the rail-mounting unit ... 26
5.5.2 Connecting the field unit ... 26

6 Start-up ... 27
6.1 Checking zero and span ... 27
6.1.1 Checking zero ... 29
6.1.2 Checking span ... 29
6.2 Zero adjustment (versions with 0 to 20 mA input signal) ... 29

7 Operation ... 30

8 Malfunctions ... 31
8.1 Troubleshooting ... 31
8.2 Emergency action ... 32

9 Servicing ... 33

10 Decommissioning ... 34

11 Removal ... 35
11.1 Removing the rail-mounting unit ... 35

11.2 Removing the field unit 35

12 Repairs 36
12.1 Servicing explosion-protected devices 36
12.2 Returning the converter to SAMSON 36

13 Disposal 37

14 Certificates 38

15 Appendix 49
15.1 Accessories 49
15.2 After-sales service 50

1 Safety instructions and measures

Intended use

The Type 6111 i/p Converter is used to convert a direct current input signal into a pneumatic output signal for measuring and control tasks. The i/p converter is particularly suitable as an intermediate element between electric measuring devices and pneumatic controllers or between electric control devices and pneumatic control valves.

The i/p converter is designed to operate under exactly defined conditions (e.g. input signal, pressure). Therefore, operators must ensure that the i/p converter is only used in operating conditions that meet the specifications used for sizing the i/p converter at the ordering stage. In case operators intend to use the device in applications or conditions other than those specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

⇨ Refer to the technical data for limits and fields of application as well as possible uses (see Chapter 3).

Reasonably foreseeable misuse

The product (Type 6111) is not suitable for the following applications:

– Use outside the limits defined during sizing and by the technical data

Furthermore, the following activities do not comply with the intended use:

– Use of non-original spare parts
– Performing service and repair work not described

Qualifications of operating personnel

The product (Type 6111) must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices must be observed. According to the mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Personal protective equipment

SAMSON recommends checking the hazards posed by the plant and the process medium being used (e.g. ▶ GESTIS hazardous substances database.

⇨ Provide protective equipment (e.g. safety gloves, eye protection) appropriate for the material safety data sheet.

⇨ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications of the product (Type 6111) are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use. Use of the device is no longer permitted in this case.

Warning against residual hazards

To avoid personal injury or property damage, operators and operating personnel must prevent hazards that could be caused in the product (Type 6111) by the process medium and operating pressure by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warnings and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

Responsibilities of the operator

Operators are responsible for proper use and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third parties are not exposed to any danger.

Responsibilities of operating personnel

Operating personnel must read and understand these mounting and operating instructions as well as the specified hazard statements, warnings and caution notes. Furthermore, operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced standards, directives and regulations

The product (Type 6111) with a CE marking fulfills the requirements of the following Directives:

– RoHS Directive 2011/65/EU
– EMC Directive 2014/30/EU
– ATEX Directive 2014/34/EU

Referenced documents

The following documents apply in addition to these mounting and operating instructions:

– Version as field unit: the mounting and operating instructions of the components on which the converter is mounted (valve, actuator, valve accessories etc.)

– Safety Manual ▶ SH 6111

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the device (Type 6111) in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death, even with a harmless supply voltage.

⇨ The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165-1).

⇨ Installation, operation or maintenance of the converter is to be performed only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas. Installation, operation or maintenance of the converter is to be performed only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

1.2 Notes on possible personal injury

⚠ WARNING

The device (Type 6111) poses no hazard with possible personal injury.

⇨ Check with the plant operator for details on possible personal injury which could be caused by the plant and ambient conditions (e.g. process medium, temperature).

⚠ WARNING

Damage to health relating to the REACH regulation.

If a SAMSON device contains a substance listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.

⇨ Observe information on safe use of the part affected ▶ www.samsongroup.com > About SAMSON > Environment, Social & Governance > Material Compliance > REACH.

⚠ WARNING

Risk of personal injury due to incorrect operation, use or installation as a result of information on the device being illegible.

Over time, markings, labels and nameplates on the device may become covered with dirt or become illegible in some other way. As a result, hazards may go unnoticed and the necessary instructions not followed. There is a risk of personal injury.

⇨ Keep all relevant markings and inscriptions on the device in a constantly legible state.

⇨ Immediately renew damaged, missing or incorrect nameplates or labels.

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

While in operation, the converter vents exhaust air over the vent plug.

⇨ Locate the vent plug on the opposite side to the work position of operating personnel.

1.3 Notes on possible property damage

NOTICE

A zero shift, malfunction or device damage may occur due to shocks or jolting.

Shocks can cause a zero shift and impair the correct functioning.

⇨ Protect the device against external influences (e.g. impact, shocks).

⇨ Check zero, if necessary (see Chapter 6).

NOTICE

Risk of malfunction due to failure to comply with air quality requirements.

An insufficient air quality may lead to the output signal not being proportional to the input signal.

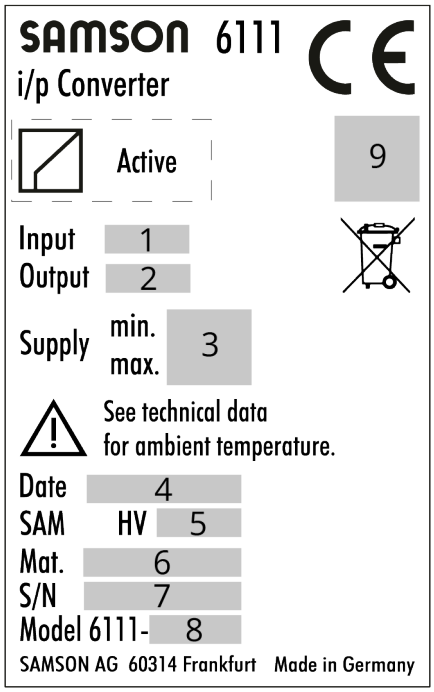
⇨ Make sure that the air quality complies with the requirements (see Chapter 3.2).

⇨ Check the air filter and separator installed in the upstream air reducing station regularly.

2 Markings on the device

2.1 Nameplate

The nameplate shown was up to date at the time of publication of this document. The nameplate on the device may differ from the one shown.



1 Input signal (electric)
2 Output signal (pneumatic)
3 Supply pressure
4 Date of manufacture
5 Hardware version
6 Material number
7 Serial number
8 Model number
9 Identification code (scannable)

i *Note*

The Types 6109 and 6112 i/p Converter Modules installed have their own nameplates. They are different than the nameplate of the i/p converter.

Location of the nameplate

The nameplate of the rail-mounting unit is lasered onto the front cover.
The nameplate of the field unit is stuck on the field housing.

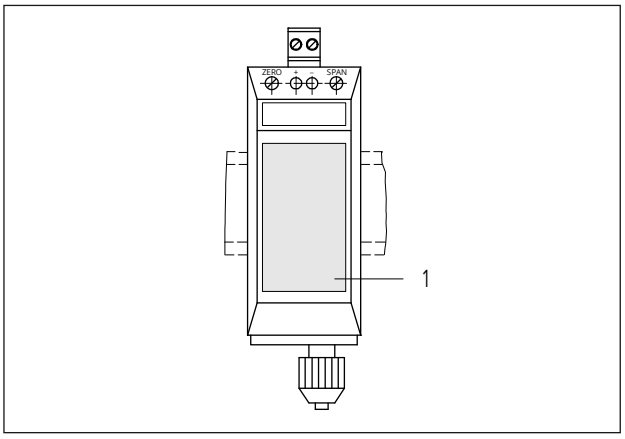


Fig. 1: *Location of the nameplate on the rail-mounting unit*

1 Nameplate

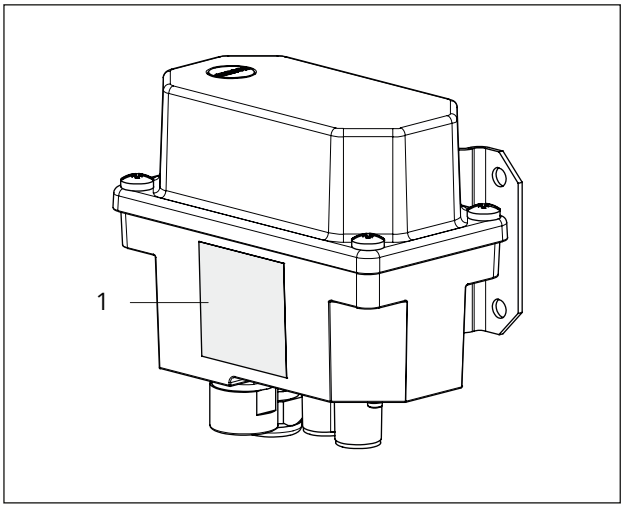


Fig. 2: *Location of the nameplate on the field unit*

1 Nameplate

2.2 Article code

Type 6111-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Explosion protection	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
Without	0	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
⟨Ex⟩ II 2G Ex ia IIC T6 according to ATEX[6]	1	|	|	|	|	|	|	|	|	|	|	|	|	|	|
⟨Ex⟩ II 3G Ex nA II T6 according to ATEX[4] [6]	8	|	|	|	|	|	|	|	|	|	|	|	|	|	|
	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
Housing	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
For rail mounting, 35 mm top-hat rail (DIN EN 60714)	|	0	|	|	|	|	|	|	|	|	|	|	|	|	|	|
Field housing in stainless steel 1.4581	|	1	|	|	|	|	|	|	|	|	|	|	|	|	|	|
	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
i/p converter module	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
Type 6109	|	|	1	|	|	|	|	|	|	|	|	|	|	|	|	|
Type 6112	|	|	2	|	|	|	|	|	|	|	|	|	|	|	|	|
	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
Input	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
4 to 20 mA with switch-off electronics	|	|	|	0	1	|	|	|	|	|	|	|	|	|	|	|
0 to 20 mA without switch-off electronics [1]	|	|	2	0	2	|	|	|	|	|	|	|	|	|	|	|
4 to 12 mA with switch-off electronics	|	|	2	0	3	|	|	|	|	|	|	|	|	|	|	|
12 to 20 mA with switch-off electronics	|	|	2	0	4	|	|	|	|	|	|	|	|	|	|	|
	|	|	|			|	|	|	|	|	|	|	|	|	|
Volume booster	|	|	|			|	|	|	|	|	|	|	|	|	|	|
I (output from 0.1 bar/3 psi)	|	|	|		1	|	|	|	|	|	|	|	|	|	|	|
II (output from 0 bar/0 psi)[2]	|	|	2		2	|	|	|	|	|	|	|	|	|	|	|
	|	|	|			|	|	|	|	|	|	|	|	|	|
Output	|	|	|			|	|	|	|	|	|	|	|	|	|	|
0.2 to 1.0 bar	|	|	|		1	0	1	|	|	|	|	|	|	|	|	|
3 to 15 psi	|	|	|		1	0	2	|	|	|	|	|	|	|	|	|
0.4 to 2.0 bar	|	|	2		1	0	3	|	|	|	|	|	|	|	|	|
6 to 30 psi	|	|	2		1	0	4	|	|	|	|	|	|	|	|	|
	|	|	|			|	|	|	|	|	|	|	|	|	|
Special ranges	|	|	|			|	|	|	|	|	|	|	|	|	|
Lower range value[5]/span Δp	|	|	|			|	|	|	|	|	|	|	|	|	|
0.1 to 0.4 bar/0.75 to 1.00 bar	|	|	2			1	1	|	|	|	|	|	|	|	|	|
0.1 to 0.4 bar/1.00 to 1.35 bar	|	|	2			1	2	|	|	|	|	|	|	|	|	|
0.1 to 0.4 bar/1.35 to 1.81 bar	|	|	2			1	3	|	|	|	|	|	|	|	|	|
0.1 to 0.8 bar/1.81 to 2.44 bar	|	|	2			1	4	|	|	|	|	|	|	|	|	|
0.1 to 0.8 bar/2.44 to 3.28 bar	0	|	2			1	5	|	|	|	|	|	|	|	|	|
0.1 to 0.8 bar/3.28 to 4.42 bar	0	|	2			1	6	|	|	|	|	|	|	|	|	|
0.1 to 1.2 bar/4.42 to 5.94 bar	0	|	2			1	7	|	|	|	|	|	|	|	|	|
0.1 to 1.2 bar/5.94 to 8.00 bar	0	|	2			1	8	|	|	|	|	|	|	|	|	|
		|	|					|	|	|	|	|	|	|	|
Direction of action		|	|					|	|	|	|	|	|	|	|
Increasing/increasing		|	|					1	|	|	|	|	|	|	|
Increasing/decreasing		|	2						2	|	|	|	|	|	|	|
		|							|	|	|	|	|	|	|

Pneumatic connection	|	|	|	|	|	|	|	|
For hose with 4 mm inside and 6 mm outside diameter (hose connection M10x1)	0	0	|	|	|	|	|	|
⅛-27 NPT female thread	0	1	|	|	|	|	|	|
ISO-228/G ⅛ female thread	0	2	|	|	|	|	|	|
M5 female thread	0	3	|	|	|	|	|	|
¼-18 NPT	1	4	|	|	|	|	|	|
	|		|	|	|	|	|	|
Electrical connection	|		|	|	|	|	|	|
For 0.5 to 2.5 mm² terminals	0		1	|	|	|	|	|
Male angle connector according to DIN EN 175301-803	0		2	|	|	|	|	|
M20x1.5	1		3	|	|	|	|	|
	|			|	|	|	|	|
Degree of protection	|			|	|	|	|	|
IP20	0			1	|	|	|	|
IP65	1			2	|	|	|	|
					|	|	|	|
Temperature					|	|	|	|
T_{min} ≥–20 °C					0	|	|	|
						|	|	|
Special version						|	|	|
Without						0	0	0

1) Without switch-off electronics and without potentiometer for zero point correction and explosion-protected device without potentiometer for span correction

2) A relatively stable supply air network is required for the special version with volume booster II.

3) Specify setting range, e.g. set to 0.1 to 4 bar; output pressure max. 8 bar, supply air 10 bar

4) For Ex nA applications, the rail-mounting unit must be installed in a housing with a minimum IP54 degree of protection (see the statement of conformity in Chapter 14).

5) Lower range value raised up to max. 3.0 bar (special version 300 and 301)

6) Upper range value of the output signal up to max. 2.0 bar

3 Design and principle of operation

The Type 6111 i/p Converter is used to convert a direct current input signal into a pneumatic output signal for measuring and control tasks. It consists of a Type 6109 or Type 6112 i/p Converter Module and a downstream volume booster.

The converter input is a load-independent direct current of 4 to 20 mA or 0 or 20 mA. The output is a pneumatic signal of 0.2 to 1 bar or other signal ranges up to max. 8 bar.

The converter is available as a rail-mounting unit or field unit.

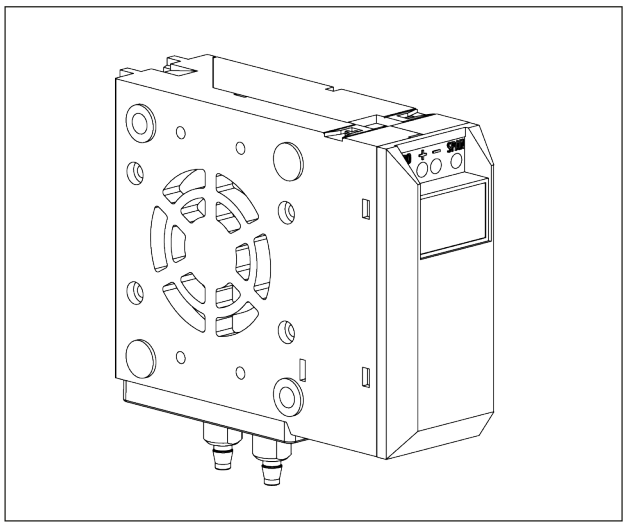


Fig. 3: *Type 6111, rail-mounting unit*

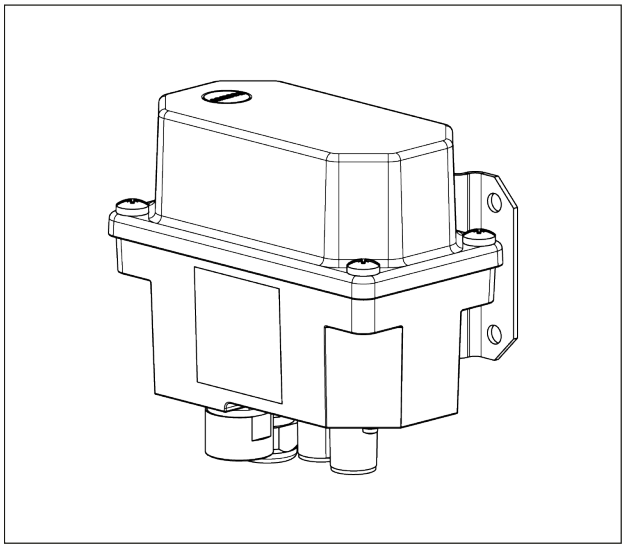


Fig. 4: *Type 6111, field unit for offshore applications*

Principle of operation

⇨ See Fig. 5 and Fig. 6.

When operated, the supplied direct current i flows through the plunger coil (2) located in the field of a permanent magnet (3). At the balance beam (1), the force of the plunger coil, which is proportional to the current, is balanced against the force of the dynamic backpressure p_K. It is created at the flapper (6) by the air jet leaving the nozzle.

The supply air (SUPPLY 9) flows to the bottom chamber of the volume booster (8). A certain amount of air determined by the diaphragm position flows past the sleeve (8.5) and leaves through the output (OUTPUT 36).

The output signal p_A is used also to supply the nozzle (7). The offset spring (8.2) ensures that the output signal is at least 100 mbar even at an input signal of 0 mA.

As the input current and the forces acting on the plunger coil increase, the flapper plate (6) moves closer to the nozzle (7). This causes the backpressure and the cascade pressure p_K upstream of the restriction (8.2) to increase. The cascade pressure increases until it corresponds with the input current.

The increasing cascade pressure pushes the diaphragm (10) and the plug sleeve (9) downwards. As a result, the supply air causes the output pressure p_A to increase until a new state of equilibrium is reached in the diaphragm chambers. When the cascade pressure drops, the diaphragm moves upward, releasing the plug sleeve and thus allowing the output pressure p_A to escape through the vent plug (EXHAUST) until the forces are equal again.

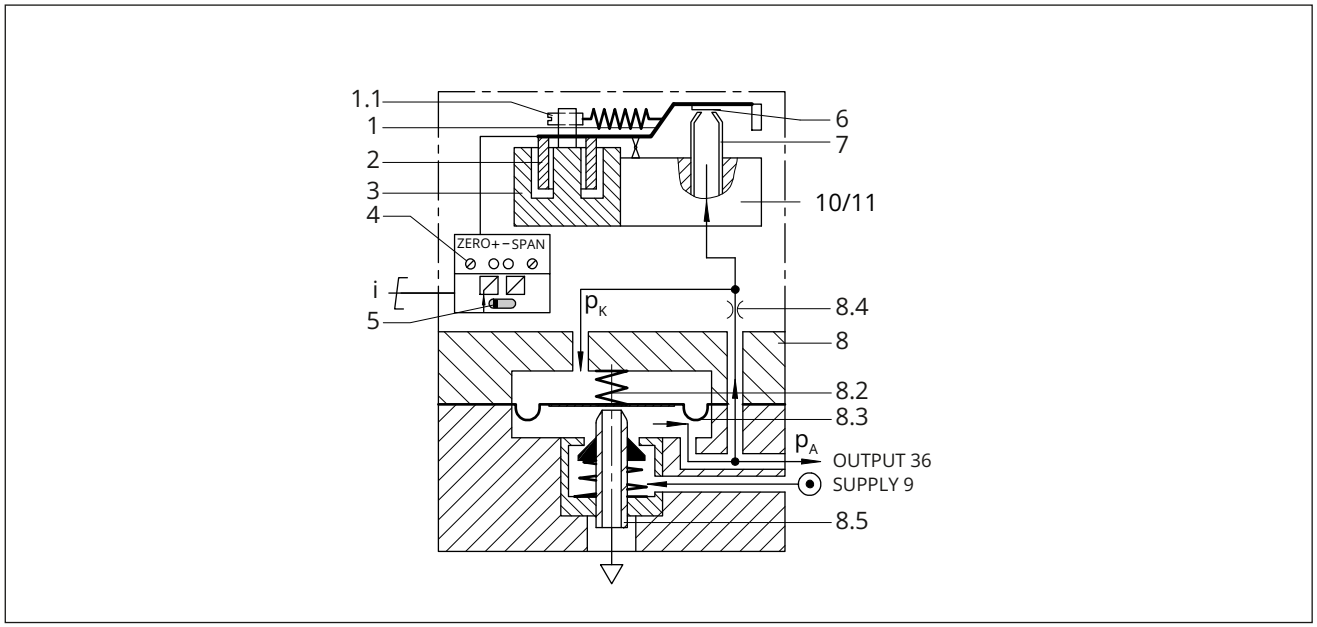


Fig. 5: *Functional diagram 1 · Version with volume booster I*

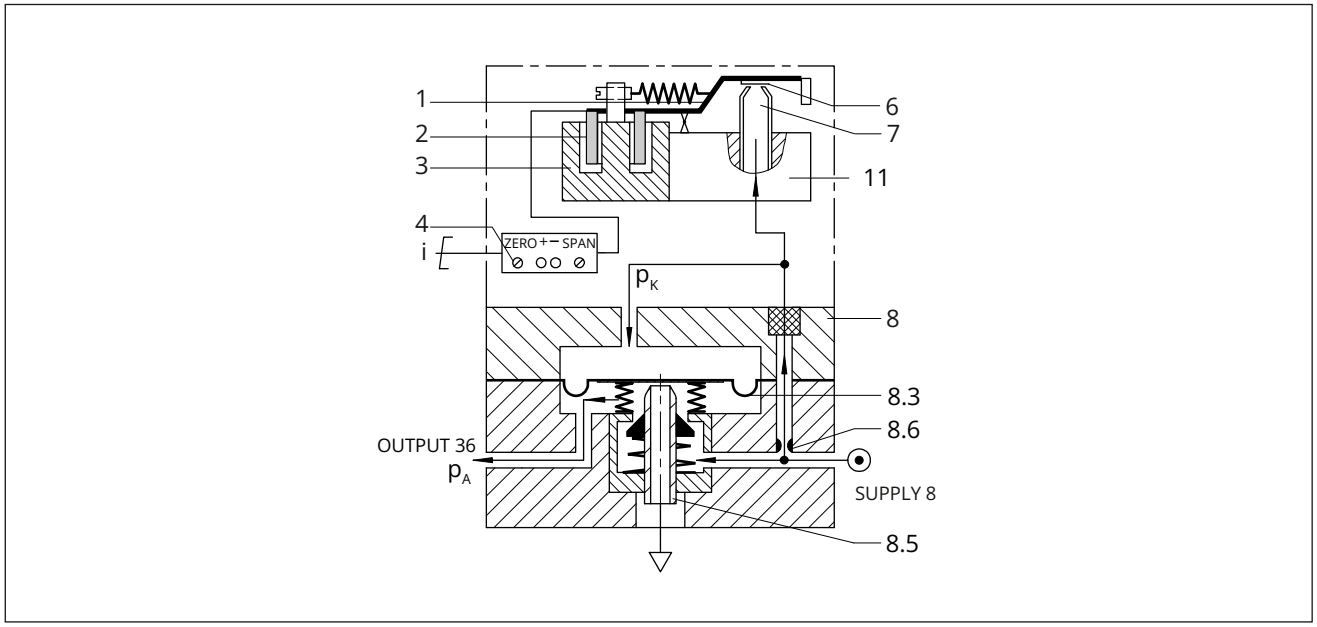


Fig. 6: *Functional diagram 2 · Version with volume booster II*

1 Balance beam
1.1 Mechanical zero point adjuster (0 to 20 mA version only)
2 Plunger coil
3 Permanent magnet
4 Zero point and span adjusters (not in 0 to 20 mA version)
5 Slide switch for switch-off electronics (not in 0 to 20 mA version)
6 Flapper plate
7 Nozzle
8 Volume booster
8.2 Offset spring
8.3 Diaphragm
8.4 Restrictor

8.5 Plug sleeve (venting)
8.6 Fixed restriction
9 Springs
10 Type 6109 i/p Module
11 Type 6112 i/p Module
P_A Output pressure
P_K Backpressure (cascade pressure)
⊙ Supply air

3.1 Variants

i ***Note***

The nameplate and article code provide details on the device version (see Chapter 2).

Rail-mounting unit

The i/p converter is designed for mounting on a top-hat rail. Optionally, wall mounting is possible using the two Ø5.5 mm holes. The converters can also be mounted on a supply air manifold using the corresponding accessories (see Chapter 5.3.3 and Chapter 15.1).

Field unit

The i/p converter is fitted with a field housing which allows it to be used directly in the field. The field unit is fastened using a mounting bracket which is included in scope of delivery (see Chapter 15.1).

Volume booster

The i/p converter is either fitted with the volume booster I or II (see Fig. 5, Fig. 6 and Table 1). A relatively stable supply air network is required for the version with volume booster II.

Switch-off electronics

The 4 to 20 mA version with electronics has a slide switch. The switch-off electronic function allows the input signal to be set to 0 mA when the signal falls below the switching point of 4.08 mA ± switching differential. This causes the pneumatic output to be vented to approximately 100 mbar. This guarantees, for example the tight shut-off function of a valve. This function requires a characteristic which passes through the zero point, for example for the version with 4 to 20 mA/0.2 to 1 bar.

If the characteristic line does not pass through zero (e.g. for an allocated output signal from 0.8 to 2.7 bar), the pneumatic output is vented to a remaining pressure of approx. 0.3 bar when the switch-off electronics function is activated.

Table 1: *Volume booster I and II*

Volume booster	I (see Fig. 5)	II (see Fig. 6)
Output signal	0.1 bar or higher	0.0 bar or higher
i/p converter module	Type 6109 or Type 6112	Type 6112
Sample application	For applications allowing a zero point of min. 0.1 bar Sudden changes in the supply air network can be compensated for, without affecting the output signal. Used to control pneumatic control valves	Applications requiring a zero point of 0 bar. For example, to control pneumatic cylinders or rollers used in the paper industry

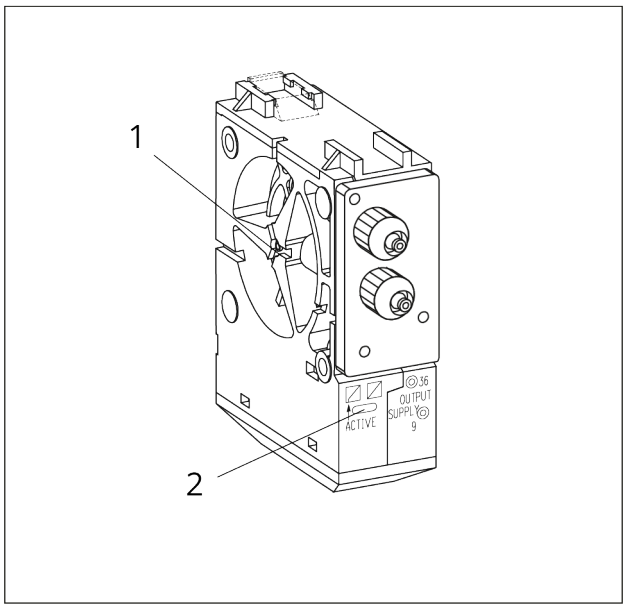


Fig. 7: *Switch-off electronics*

1 Vent plug
2 Slide switch for switch-off electronics

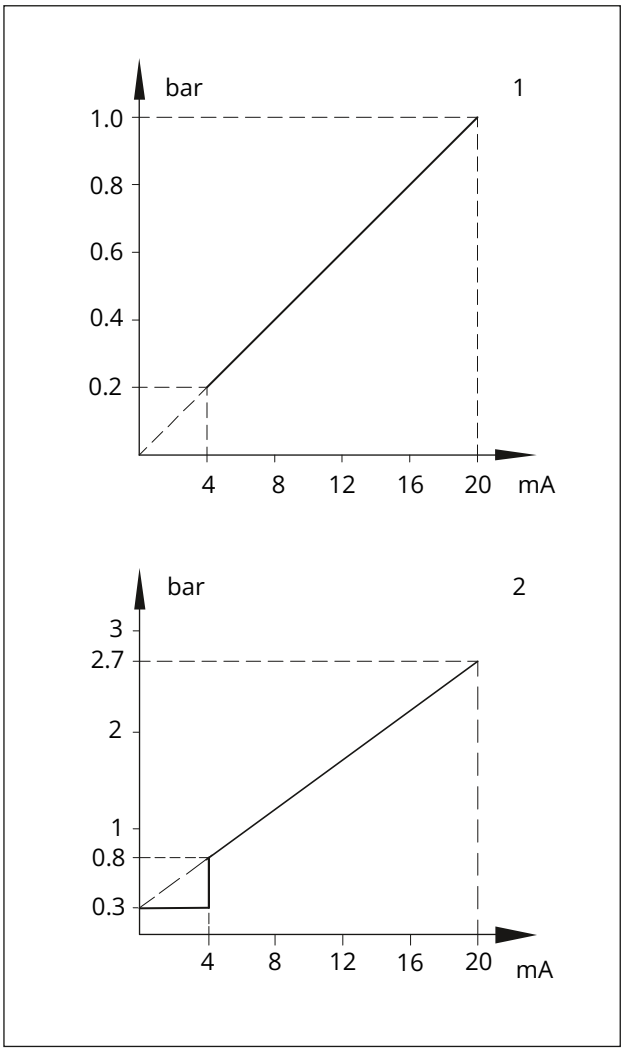


Fig. 8: *Output and remaining pressure*

1 0.2 to 1 bar output, remaining pressure approx. 0.1 bar
2 0.8 to 2.7 bar output, remaining pressure approx. 0.3 bar

3.2 Technical data

Table 2: *Technical data*

Type 6111		**Rail-mounting unit**	**Field unit**
Input		4 to 20 mA (0 to 20 mA on request) · For split-range: 4 to 12 mA or 12 to 20 mA · Other signals on request	
Load	Standard Explosion-protected version Without switch-off electronics	≤6 V (corresponding to 300 Ω at 20 mA) 7 V (corresponding to 350 Ω at 20 mA) ≤4 V (corresponding to 200 Ω at 20 mA)	
Output	Standard range	0.2 to 1 bar (3 to 15 psi) 0.4 to 2 bar (6 to 30 psi)	
	With Type 6112 i/p Module	Special ranges adjustable according to customer specifications	
		Initial value [2]	**Span** Δp
	Module A Module B Module C Module D Module E Module F Module G Module H	0.1 to 0.4 bar 0.1 to 0.4 bar 0.1 to 0.4 bar 0.1 to 0.8 bar 0.1 to 0.8 bar 0.1 to 0.8 bar 0.1 to 1.2 bar 0.1 to 1.2 bar	0.75 to 1.0 bar 1.0 to 1.35 bar 1.35 to 1.81 bar 1.81 to 2.44 bar 2.44 to 3.28 bar 3.28 to 4.42 bar 4.42 to 5.94 bar 5.94 to 8.0 bar[1]
	Max. air output capacity [3]	2.0 m^3/h with an output of 0.6 bar (0.2 to 1.0 bar) 2.5 m^3/h with an output of 1.2 bar (0.4 to 2.0 bar) 8.5 m^3/h with an output of 5.0 bar (0.1 to 8.0 bar)	
Supply air		Minimum 0.4 bar above the upper signal pressure range value, max. 10 bar without supply pressure regulator	
	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	
	Air consumption	0.08 m_n^3/h with 1.4 bar 0.1 m_n^3/h with 2.4 bar max. 0.26 m_n^3/h at 10 bar	
Characteristic		Characteristic: Output linear to input	
	Hysteresis	≤0.3 % of upper range value	
	Deviation from terminal-based conformity	≤1 % of upper range value (for upper range values ≤5 bar); more exact values on request ≤1.5 % of upper range value (for upper range values >5 bar)	
	Influence in % of upper range value	Supply air: 0.1 %/0.1 bar	
		Alternating load, supply air failure, interruption of the input current: <0.3 %	
		Ambient temperature: lower range value <0.03 %/K, span <0.03 %/K	
Dynamic response		At an output of 0.2 to 1 bar	
	Limiting frequency	5.3 Hz	
	Phase shift	-130°	
Variable position		Max. 3.5 % depending on mounting position: e.g. ±1 % when mounted horizontally	
Ambient conditions, degree of protection			
	Storage temperature range	-40 to +70 °C	
	Ambient temperature range	-20 to +70 °C	
	Degree of protection	IP20	IP65
Materials			
	Housing	Glass-fiber-reinforced polyamide	Stainless steel 1.4581 Mounting bracket 1.4301
Weight			
		0.35 kg	1.9 kg
EMC		According to EN 61000-6-2, EN 61000-6-3 and EN 61326-1	

Type 6111	Rail-mounting unit	Field unit
RoHS compliance	According to EN 50081-1 and EN 50081-2	
Conformity	CE	

1) The max. possible output pressure is 8 bar.

2) Lower range value raised up to max. 3.0 bar (special version)

3) Measured with 2 m hose with 4 mm inside diameter

3.3 Ex approvals

Type	Certificate			Type of protection/comments
6111-1	**ATEX**	Number Date	PTB 01 ATEX 2174 2001-11-26	II 2G Ex ia IIC T6 Gb
6111-8	**ATEX**	Number Date	PTB 02 ATEX 2013 X 2002-03-07	II 3G EEx nA II T6

3.4 Dimensions

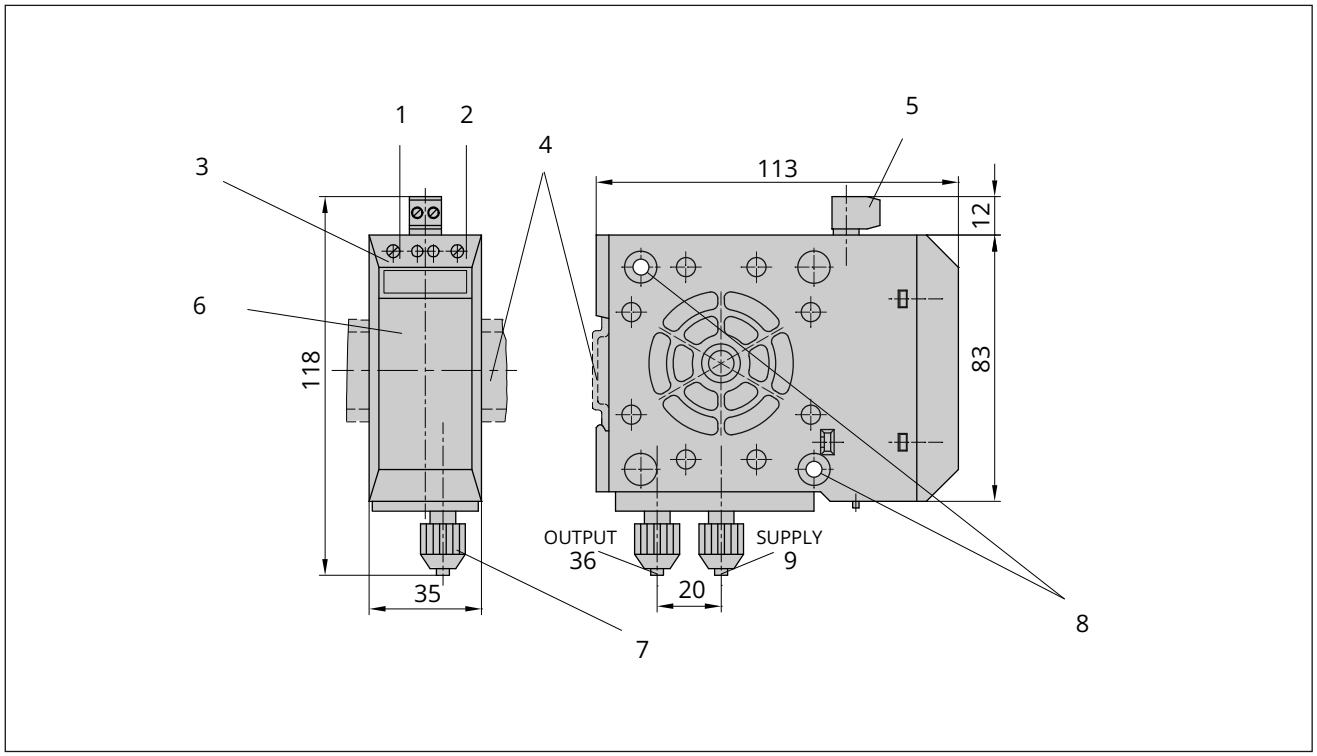


Fig. 9: *Dimensions in mm · Type 6111 as rail-mounting unit*

1 Zero adjuster
2 Span adjuster
3 Plastic cover
4 Top-hat rail
5 Terminals (electric)
6 Label
7 Pneumatic connections for hose with 4 mm inside diameter and 6 mm outside diameter
8 Ø5.5 mm holes for wall mounting

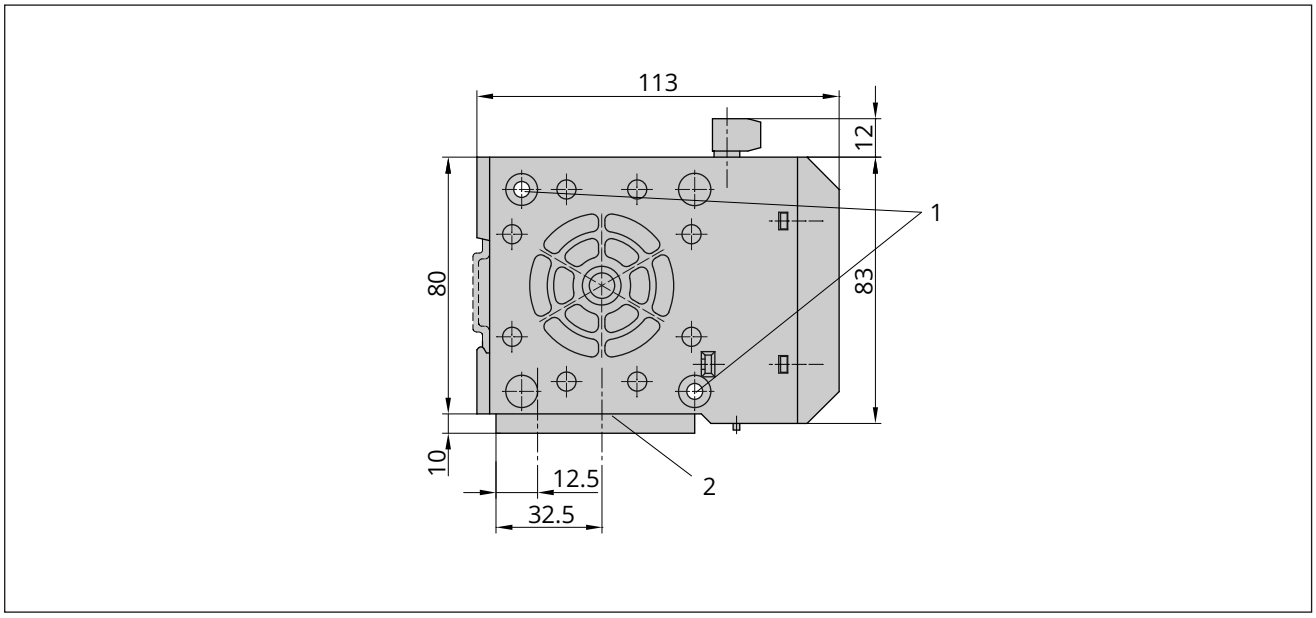


Fig. 10: *Dimensions in mm · Type 6111 as rail-mounting unit, version with connecting plate G ⅛ or ⅛ NPT thread*

1 Ø5.5 mm holes for wall mounting
2 Connecting plate

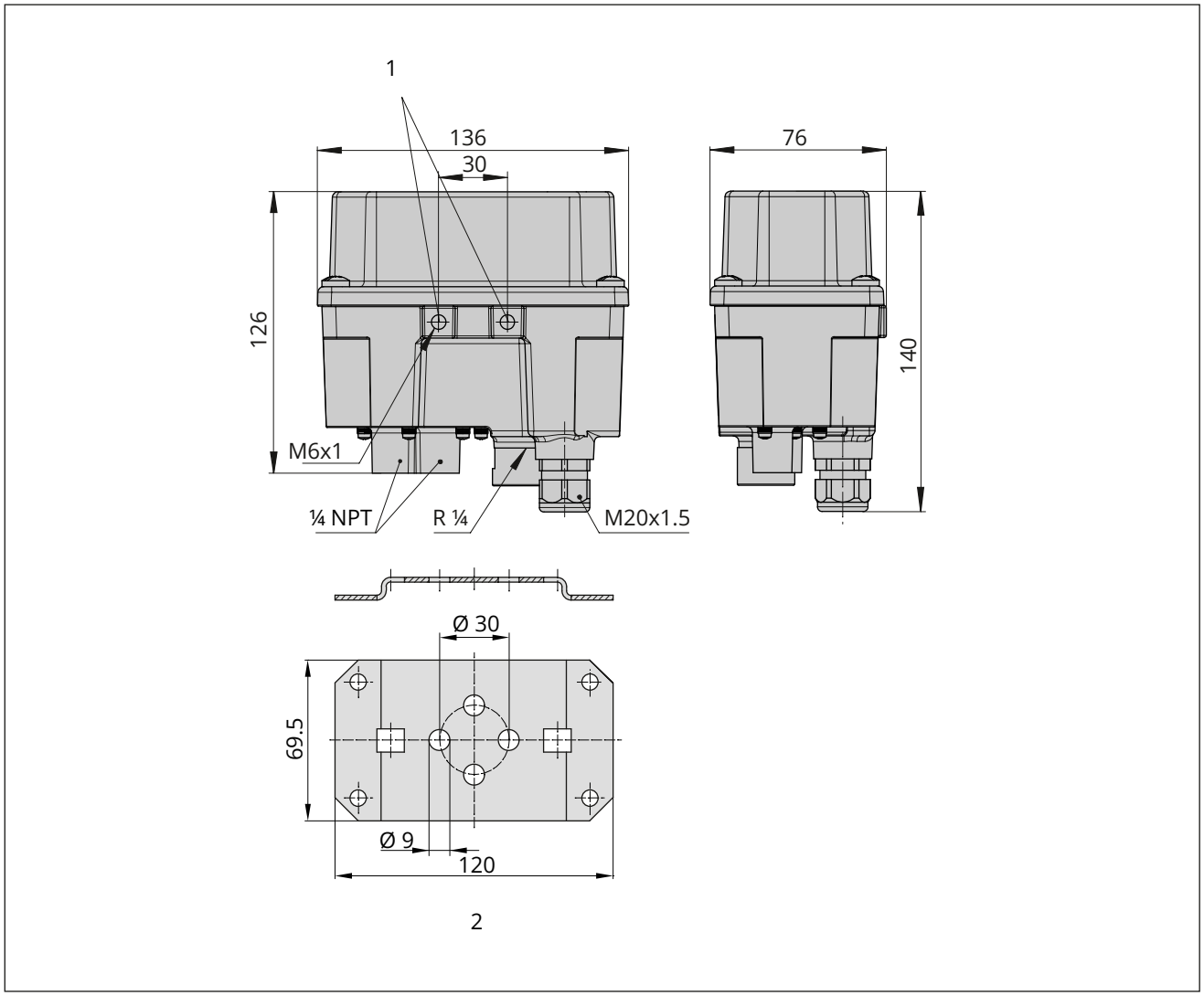


Fig. 11: *Dimensions in mm · Type 6111 as field unit*

1 Holes (M6, 15 mm deep) for attaching the bracket

2 Mounting bracket

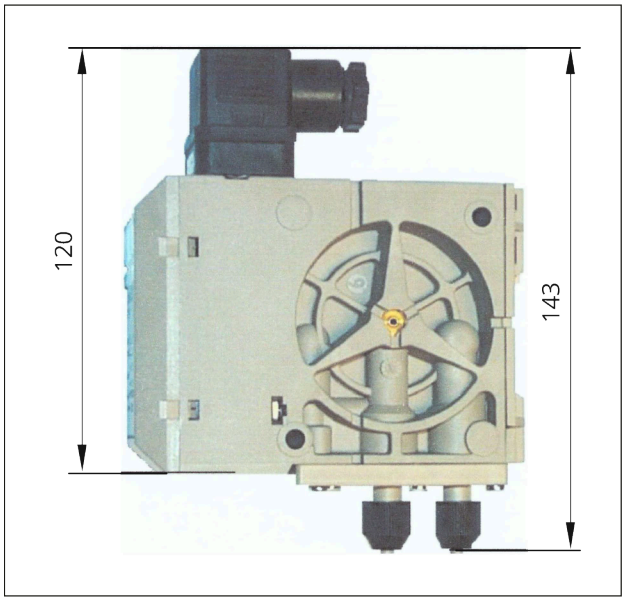


Fig. 12: *Dimensions in mm · Type 6111 with male angle connector (cable socket) and pneumatic hose connection M10x1*

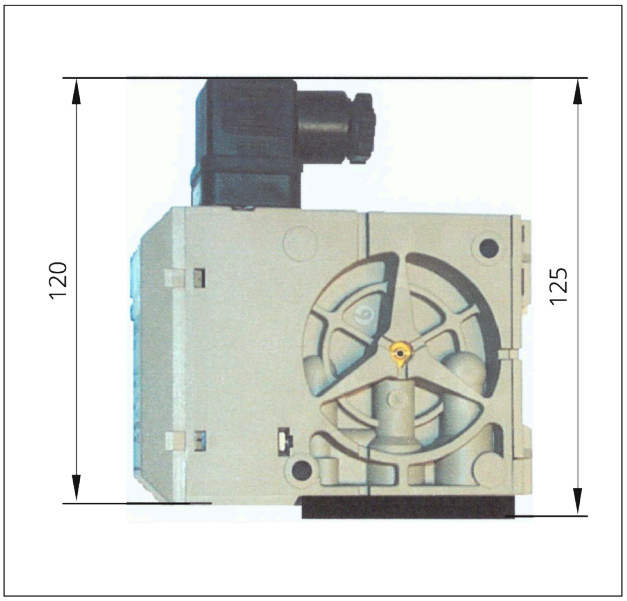


Fig. 14: *Dimensions in mm · Type 6111 with male angle connector (cable socket) and pneumatic connecting plate with ⅛ NPT or G ⅛ thread*

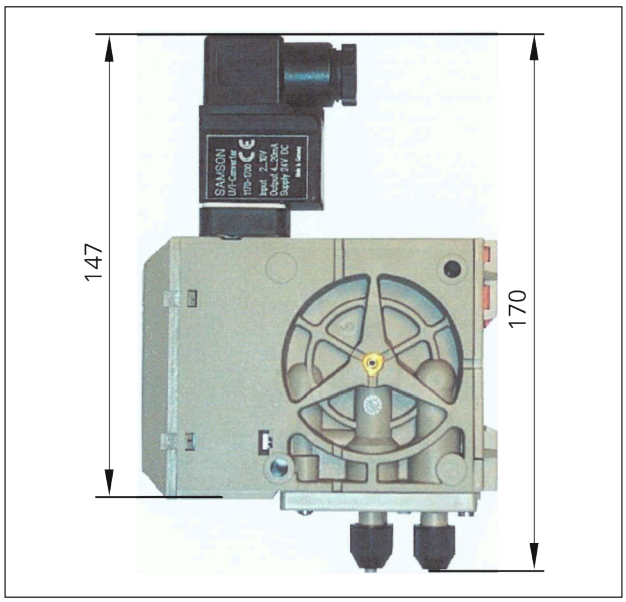


Fig. 13: *Dimensions in mm · Type 6111 with male angle connector (cable socket), Type 6151/6150 module and hose connection*

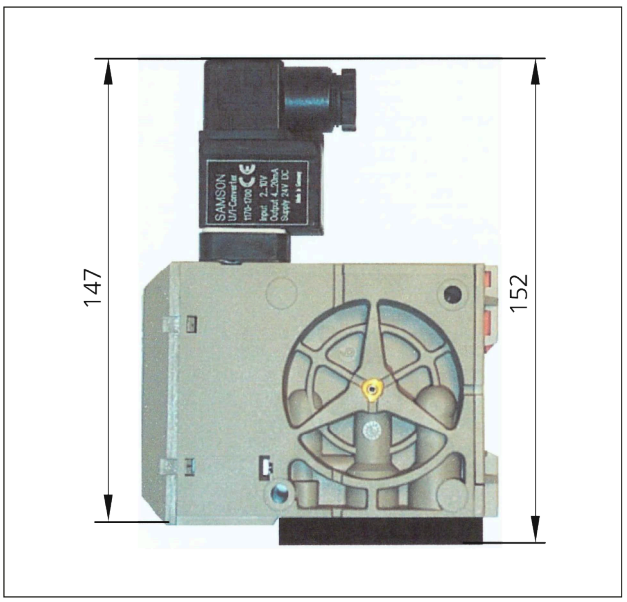


Fig. 15: *Dimensions in mm · Type 6111 with male angle connector (cable socket) and Type 6151/6150 module, with pneumatic connecting plate with ⅛ NPT or G ⅛ thread*

4 Shipment and on-site transport

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.2 Removing the packaging from the converter

i ***Note***

Do not remove the packaging until immediately before mounting and start-up.

1. Remove the packaging from the converter.
2. Check scope of delivery.
3. Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting the converter

- Protect the converter against external influences (e.g. impact).
- Protect the converter against moisture and dirt.
- Observe the permissible ambient temperature range (see Chapter 3.2).

4.4 Lifting the converter

Due to the low service weight, lifting equipment is not required to lift the converter.

4.5 Storing the converter

! ***NOTICE***

Risk of damage to the converter due to improper storage.

⇨ *Observe the storage instructions.*

⇨ *Avoid longer storage periods.*

⇨ *Contact SAMSON in case of different storage conditions or longer storage times.*

i ***Note***

SAMSON recommends to regularly check the converter and the prevailing storage conditions during long storage periods.

Storage instructions

- Protect the converter against external influences (e.g. impact).
- Protect the converter against moisture and dirt.
- Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- Observe the permissible ambient temperature range (see Chapter 3.2).
- Do not place any objects on the converter.

5 Mounting

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the device (Type 6111) in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death, even with a harmless supply voltage.

⇨ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165-1).*

⇨ *Installation, operation or maintenance of the converter is to be performed only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas. Installation, operation or maintenance of the converter is to be performed only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

5.1 Installation conditions

5.1.1 Work position

The work position for the converter is the front view onto the operating controls on the converter seen from the position of operating personnel.

Operators must ensure that, after installation of the converter, the operating personnel can perform all necessary work safely and easily access the device from the work position.

5.1.2 Mounting position

5.2 Preparation for installation

Before installation, make sure that the following conditions are met:

– The converter is not damaged.
– The pneumatic connections of the converter are clean.

Proceed as follows:

⇨ Lay out the necessary material and tools to have them ready during mounting (see Chapter 15.1 for accessories required).

⇨ Check any mounted pressure gauges to make sure they function properly.

5.3 Installing i/p converters

5.3.1 Installing the rail-mounting unit

⇨ Snap the i/p converter onto the top-hat rail.

i *Note*

Optionally, wall mounting is possible using the two Ø5.5 mm holes.
The devices can also be mounted on a supply air manifold using the corresponding accessories (see Chapter 5.3.3 and Chapter 15.1).

5.3.2 Installing the field unit

1. Fasten the supplied mounting bracket (see Chapter 15.1) onto the i/p converter using the two screws in the required position.
2. Insert the four other screws through the side holes and tighten.

5.3.3 Mounting the supply air manifold for rail-mounting units

The manifold (see Fig. 16) is available as an accessory and provides a common air supply for several Type 6111 i/p Converters. The manifold can be made to be as long as required by combining two or more connecting rails of the manifolds for 3, 4, 5 and 6 converters. Single connecting rails are connected by a coupling (5) with seals (4). Optionally, the manifold can be fitted with an air blocker (11), pressure gauge (1) as well as hose connections (7; screw or push-on fittings) for the output signals.

⇨ Supply air manifolds and the corresponding accessories are listed in Chapter 15.1.

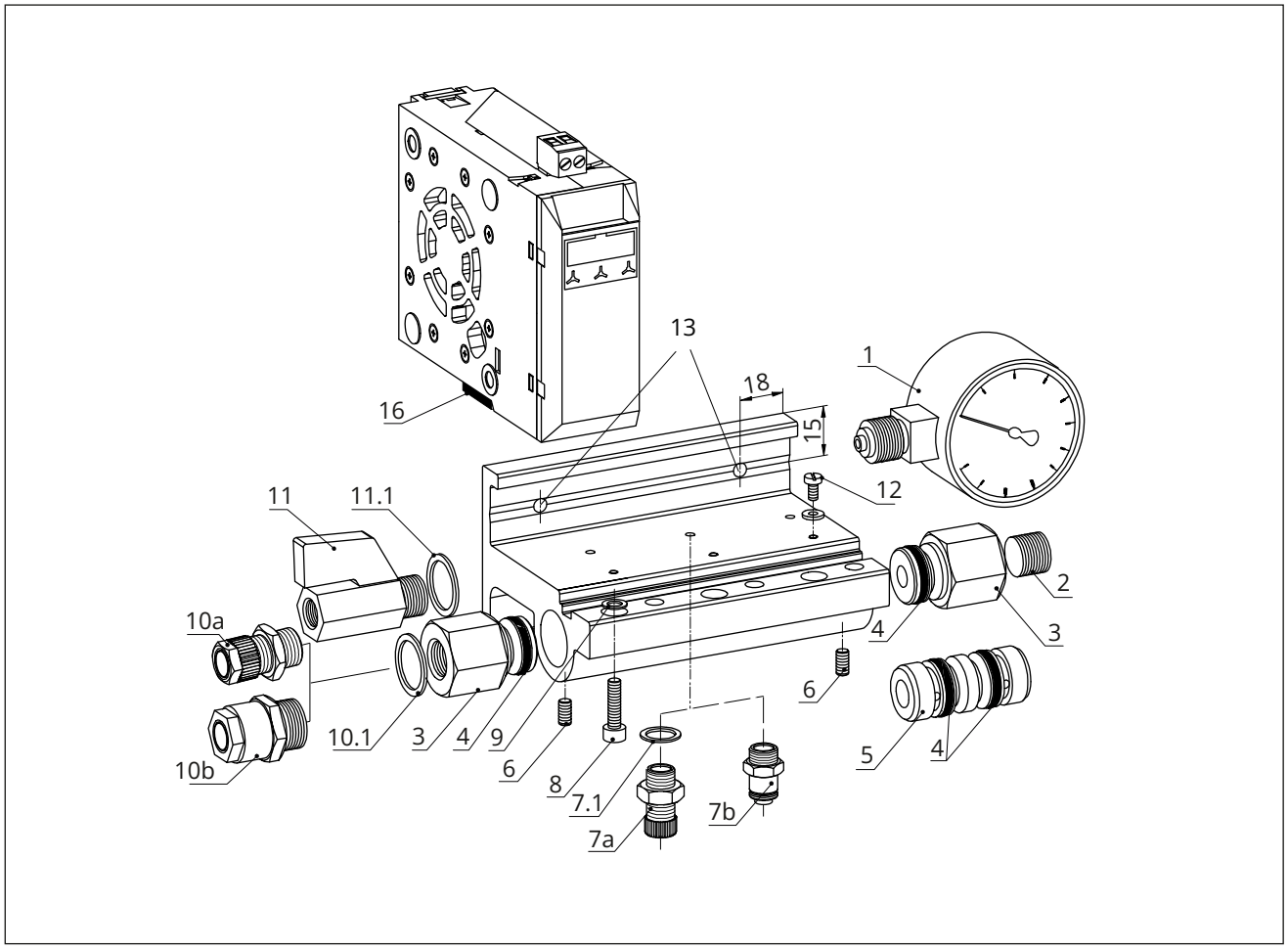


Fig. 16: *Mounting with supply air manifold*

1 Pressure gauge
2 Screw plug
3 Connector G ¼
4 Seal [1)]
5 Coupling
6 M4x6 grub screw [1)]
7 Connection for output signal
a: Hose screw fitting
b: Hose push-on fitting (with integrated seal)
7.1 Washer
8 M4x16 cap screw [1)]
9 3x2.7 mm O-ring [1)]
10 Connection for supply air (G ¼)
a: Hose screw fitting
b: Hose push-on fitting
10.1 Seal
11 Air blocker
11.1 Seal
12 M3x6 screw with seal [1)]
13 Holes for mounting
16 Adapter plate
[1)] Included in the scope of delivery of the basic version



Fig. 17: *Supply air manifold for Type 6111*

5.3.3.1 Fastening the supply air manifold

⇨ To mount the manifold on a wall or panel in a control cabinet, drill holes for M5 screws in the groove of the connecting rail.

⇨ Keep 18 mm distance between the holes and the left and right edge of the rail to ensure the i/p converters can be mounted properly.

5.3.3.2 Assembling the supply air manifold

⇨ See Fig. 16.

i ***Note***

Connect the supply air either over the connector (3) or over a hose screw fitting (10a) or push-on fitting (10b).

1. Insert seals (4) on the connectors (3).
2. **Assembly without air blocker:**
   Screw the hose screw fitting (10a) or push-on fitting (10b) with seal (10.1) into one of the two connectors (3) and tighten.

   Assembly with air blocker:
   Screw the air blocker (11) with seal (11.1) into the connector (3). Screw the hose screw fitting (10a) or push-on fitting (10b) with seal (10.1) into the air blocker.
3. **Assembly without pressure gauge:**
   Screw the screw plug (2) into the connector (3).

   Assembly with pressure gauge:
   Screw the pressure gauge (1) into the connector (3).
4. Mount connectors at the ends of the manifold rail, align them and secure them in place with the grub screws (6).
5. **Assembly with hose screw fitting:**
   Screw the fitting (7a) together with a washer (7.1) into the threaded hole (G ⅛) on the bottom of the connecting rail.
   Assembly with hose push-on fitting:
   Screw the fitting (7b) without an additional washer into the threaded hole (G ⅛) on the bottom of the connecting rail.

5.3.3.3 Connecting several supply air manifolds

⇨ See Fig. 16.

A coupling (5) with seals (4) is used to connect the single connecting rails together:

1. Place seals (4) on the outer grooves of the coupling (5).
2. Press the coupling (5) into the manifold hole and push on the connecting rail as far as it will go.
3. Secure parts in place using grub screws (6).

5.3.3.4 Mounting the i/p converter on the manifold

⇨ See Fig. 16.

1. Insert cap screws (8) from below into the holes in the connecting rail.
2. Push on O-rings (9) from the top to prevent the cap screws (8) from falling out.
3. Unscrew the original connecting plate (15) from the bottom of the i/p converter.
4. Fasten the black connecting plate (16) onto the i/p converter using the two 3x10 mm screws (see Fig. 18).
5. Slightly tilt the i/p converter upwards and place it on the manifold. Press the converter down and secure it with the fastening screw (8).

i ***Note***

If fewer Type 6111 Converters are mounted on the manifold than it is intended for, seal any unused holes in the supply air duct with the M3x6 cap screws (12) and seals (see Chapter 15.1).

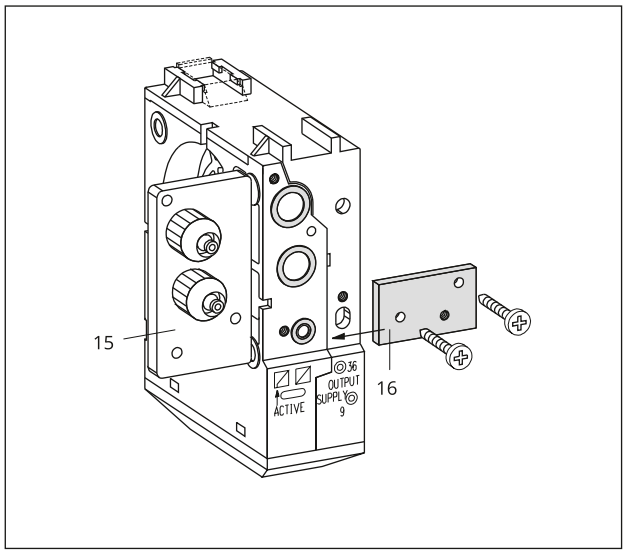


Fig. 18: *Exchanging the connecting plate*

15 Connecting plate (hose connection)

16 Adapter plate (supply air manifold) with 3x10 mm screws (included in the scope of delivery of the supply air manifold)

Table 3: *Typical combination of connecting rails/supply air manifolds for 3 to 15 i/p converters*

Number of Type 6111 i/p Converter	Combination with coupling Units per manifold rail				Manifold rail[1] Length in mm Height: 75 mm
	3	4	5	6	
3	1	–	–	–	108
4	–	1	–	–	144
5	–	–	1	–	180
6	–	–	–	1	216
7	1	1	–	–	252
8	–	2	–	–	288
9	–	1	1	–	324
10	–	–	2	–	360
11	–	–	1	1	369
12	–	–	–	2	432
13	1	–	2	–	468
14	–	1	2	–	504
15	–	–	3	–	540

1) Plus length of accessories

5.4 Electrical connection

⚠ WARNING

Incorrect connection at the terminals will render the explosion protection unsafe.

⇨ *Observe the specifications in the explosion-protection certification.*

⇨ *Do not undo the enameled screws in or on the enclosure.*

⇨ Observe the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use. In Germany, these are the VDE regulations and the accident prevention regulations of the employers' liability insurance.

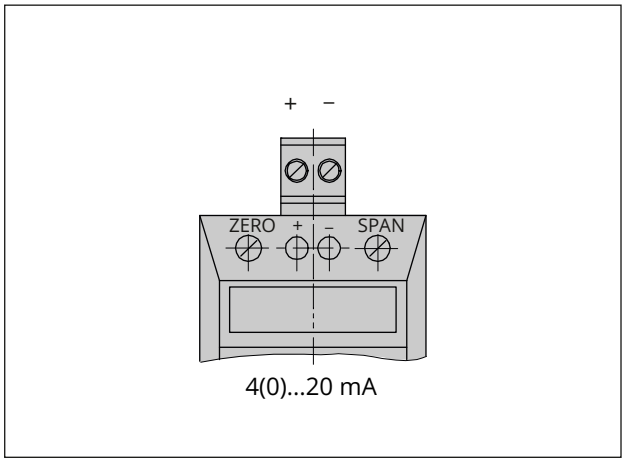


Fig. 19: *Terminal connection (input signal · Type 6111)*

⇨ Connect the wires of the input signal line to the terminals (+) and (–).

The terminals are designed for wire cross-sections from 0.2 to 2.5 mm². An additional supply voltage is not required.

Additional instructions for the electrical connection in hazardous areas

⇨ For installation in hazardous areas, observe the relevant standards that apply in the country of use. Standards applicable in Germany: DIN EN 60079-14 (VDE 0165-1):

Explosive Atmospheres – Electrical Installations Design, Selection and Erection. The maximum permissible values specified in the EC-type examination certificates apply when interconnecting intrinsically safe electrical equipment (U_i or U_0, I_i or I_0, P_i or P_0, C_i or C_0 and L_i or L_0).

Option with male angle connector

The i/p converter can also be connected using a male angle connector (DIN EN 175301-803).

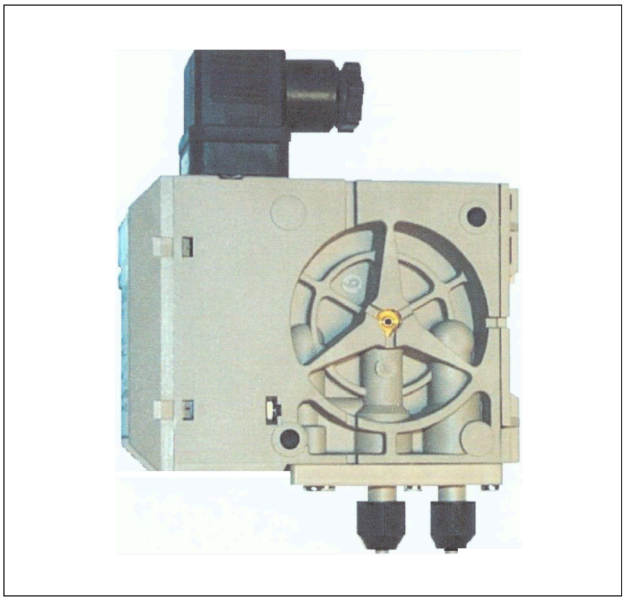
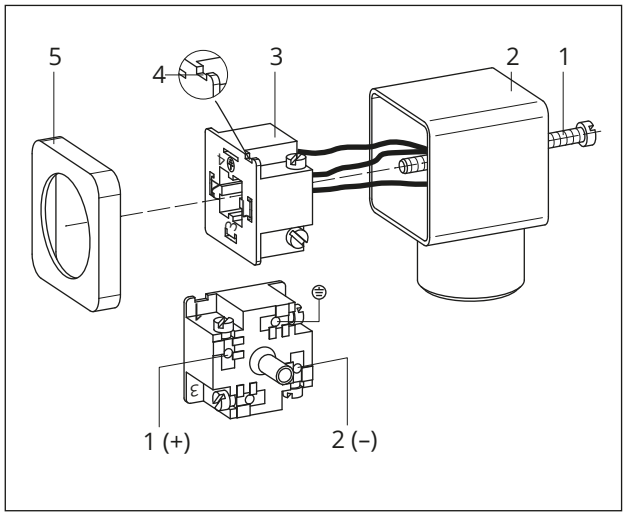


Fig. 20: *Type 6111 with male angle connector (cable socket) and pneumatic hose connection M10x1*

1. Unscrew the fastening screw (1) on the plug connector.
2. Pull the plug insert (3) out of the plug base on the housing.
3. Pull the fastening screw out of the plug connector.
4. Remove the rubber seal (5).
5. Place a screwdriver at the recess (4) and lever the plug insert (3) out of the plug connector case.
6. Run the wires for the input signal through the cable gland of the plug connector case to the terminals of the insert marked 1 (+) and 2 (–).
7. Push the insert into the plug connector case. Make sure that the screw fitting points in the correct direction after the plug connector case has been reassembled.
   The plug connector can be mounted in all four directions, turned at 90° angles.
8. Place on the rubber seal (5).
9. Plug the plug connector onto the device and fasten tight with the fastening screw (1).



1 Fastening screw
2 Plug connector case
3 Insert
4 Recess
5 Rubber seal

This male angle connector allows an i/p converter to be easily changed into an u/p converter or an AS-Interface-compatible i/p converter.

⇨ See ▶ T 6150 and ▶ T 6151.

5.5 Pneumatic connection

The supply air must meet the following requirements:

- Min. 0.4 bar above the upper signal pressure range value
- Max. 10 bar

The air for the rail-mounting unit can optionally supplied by the supply air manifold (see Chapter 5.3.3).

5.5.1 Connecting the rail-mounting unit

The standard pneumatic connections for supply air (SUPPLY 9) and output (OUTPUT 36) are designed as hose connections suitable for hose with 4 mm inside diameter and 6 mm outside diameter (see Chapter 5.3.3). The pneumatic connections are also available with ⅛ NPT, G ⅛ or M5 female thread.

5.5.2 Connecting the field unit

The pneumatic connections (supply air and output) are designed as holes with ¼-18 NPT thread.

6 Start-up

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the converter in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

⇨ *The following regulations apply to installation in hazardous areas: DIN EN 60079-14 (VDE 0165-1).*

⇨ *Installation, operation or maintenance of the i/p converter is to be performed only by personnel who has undergone special training or instructions and/or who is authorized to work on explosion-protected devices in hazardous areas.*

i *Note*

The versions with a 0 to 20 mA input signal do not have any switch-off electronics nor a potentiometer to adjust zero.
If the device does not have a zero potentiometer, the zero point can only be adjusted mechanically at the zero point adjuster (1.1, Fig. 21 and Fig. 22). See Chapter 6.2. Some versions also do not have a potentiometer to adjust the span.

6.1 Checking zero and span

The device converts the input signal proportionally into the output signal.

The signal ranges are specified on the nameplate (see Chapter 2).

If the device does not work properly for any reason, check the zero and span.

The ZERO and SPAN potentiometers are accessible through the holes in the front cover after opening the clear plastic cover (see Fig. 21 and Fig. 22).

i *Note*

The zero point of devices with volume booster I cannot be adjusted lower than 0.1 bar.

⇨ *Do not adjust the characteristic in devices with volume booster II at all as the setting is much more complicated than in the version with volume booster I.*

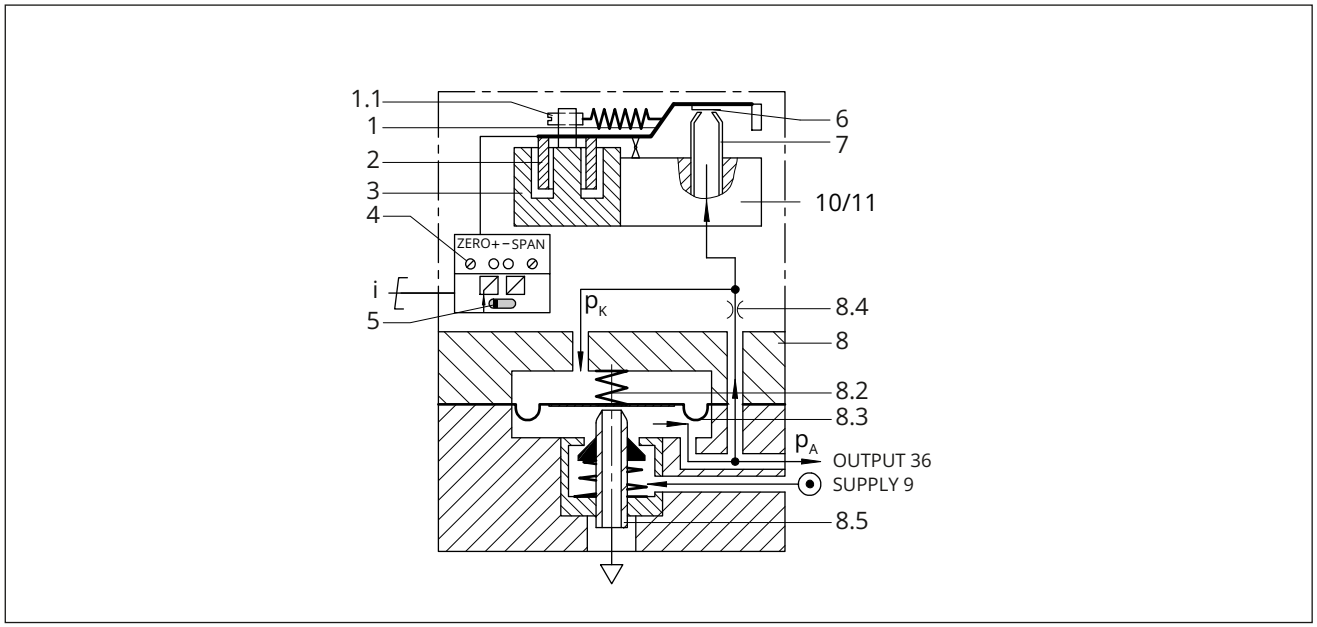


Fig. 21: *Functional diagram 1 · Version with volume booster I*

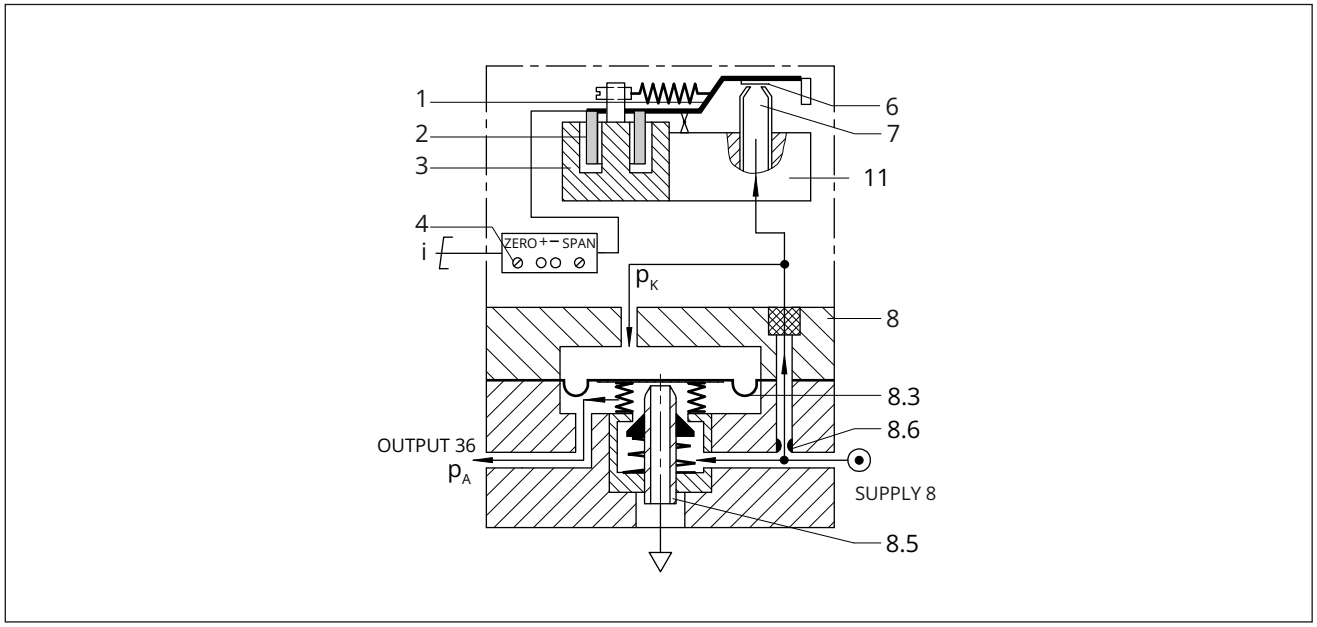


Fig. 22: *Functional diagram 2 · Version with volume booster II*

1 Balance beam
1.1 Mechanical zero point adjuster (0 to 20 mA version only)
2 Plunger coil
3 Permanent magnet
4 Zero point and span adjusters (not in 0 to 20 mA version)
5 Slide switch for switch-off electronics (not in 0 to 20 mA version)
6 Flapper plate
7 Nozzle
8 Volume booster
8.2 Offset spring
8.3 Diaphragm
8.4 Restrictor

8.5 Plug sleeve (venting)
8.6 Fixed restriction
9 Springs
10 Type 6109 i/p Module
11 Type 6112 i/p Module
P_A Output pressure
P_K Backpressure (cascade pressure)
⊙ Supply air

6.1.1 Checking zero

1. Connect a pressure gauge (minimum accuracy class 1) to the converter output.
2. Set the supply air to 0.4 bar above the upper range value of the output signal and apply it to the device (SUPPLY).
3. Deactivate the switch-off electronics function at the slide switch (5). Push the switch away from the ACTIVE arrow.
4. Set the input signal to the lower range value using a suitable ammeter. Example: set it to 4 mA for 4 to 20 mA range = 0.2 to 1 bar.
   The output signal of the pressure gauge should now indicate 0.2 bar.
5. If this is not the case, readjust the zero accordingly with the ZERO potentiometer.

6.1.2 Checking span

1. Set the input signal to 20 mA (upper range value) using a suitable ammeter.
   Example: The output signal at the pressure gauge should now indicate 1.0 bar for a 4 to 20 mA range = 0.2 to 1.0 bar.
2. If this is not the case, readjust the span accordingly with the SPAN potentiometer.
3. As the adjustment of zero and span influence each other, recheck both values and correct them, if necessary.

6.2 Zero adjustment (versions with 0 to 20 mA input signal)

⇨ See Fig. 21 and Fig. 22.

If the device does not have a potentiometer for zero, the zero point can only be adjusted mechanically at the zero point adjuster (1.1).

⇨ Remove the front cover.

⇨ Insert a screwdriver through the hole in the cover of the Type 6112 i/p Module.

7 Operation

The electropneumatic converter starts to operate once start-up is completed. No further action is necessary if the input signal is converted into the output signal according to specification. If this is not the case, the quality of the output signal can be improved by retuning zero and span (see Chapter 6).

8 Malfunctions

Depending on the operating conditions, check the converter at certain intervals to prevent a possible failure before it can occur. Plant operators are responsible for drawing up an inspection and test plan.

i ***Note***

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

8.1 Troubleshooting

⇨ See Table 4.

Table 4: *Troubleshooting*

Malfunction	Possible reasons	Recommended action	Comments
No output signal despite changing the input signal	Supply air missing or not connected	⇨ Check the supply air (see Chapter 5.5).	
	Incorrect terminal assignment	⇨ Connect + and – terminals correctly (see Chapter 5.4).	**NOTICE** The i/p converters do not need any extra supply voltage. ⇨ Do not connect a voltage supply.
	Incorrect input signal	⇨ Apply correct signal.	⇨ See the nameplate (Chapter 2)
	Restrictor clogged up	⇨ Clean the restrictor.	
Output signal does not change proportionally into the input signal.	Poor air quality	⇨ Contact SAMSON's After-sales Service.	Make sure that the air quality complies with the requirements (see Chapter 3.2). Check the air filter and separator installed in the upstream air reducing station regularly.
	Mechanics jammed (e.g. due to mechanical shock)	⇨ Contact SAMSON's After-sales Service.	
	Sintered filter in SUPPLY and OUTPUT connection clogged up with dirt	⇨ Clean or exchange sintered filter.	
i/p converter constantly vents off air loudly	Connections for supply air and output at the i/p converter inadvertently reversed	⇨ Check pneumatic connections (see Chapter 5.5).	

Malfunction	Possible reasons	Recommended action	Comments
i/p converter does not reach 100 % output e.g. 20 mA input: output only 70 % instead of 100 %	Supply pressure too low	Supply air must be 0.4 bar higher than the max. output signal (supply air = 0.4 bar).	
	Input signal faulty	⇨ Check whether the input signal at the terminals reaches 100 % (100 % is e.g. 20 mA in standard version and 12 mA for split-range operation).	**NOTICE** The i/p converters have a load impedance of max. 6 V (standard version) or max. 7 V (Ex ia version). Check specification concerning permissible load impedance at the source of the input signal.
	Consumption of air capacity too high	⇨ Adapt consumption of the air capacity according to the technical data (see Chapter 3.2).	

Note

Contact SAMSON's After-sales Service for malfunctions not listed in the table.

8.2 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

9 Servicing

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the converter in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

⇨ *The following regulations apply to installation in hazardous areas: DIN EN 60079-14 (VDE 0165-1).*

⇨ *Installation, operation or maintenance of the i/p converter is to be performed only by personnel who has undergone special training or instructions and/or who is authorized to work on explosion-protected devices in hazardous areas.*

The converter requires no maintenance.

⇨ See Chapter 8 for troubleshooting.

10 Decommissioning

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or maintenance of the converter in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

⇨ *The following regulations apply to installation in hazardous areas: DIN EN 60079-14 (VDE 0165-1).*

⇨ *Installation, operation or maintenance of the i/p converter is to be performed only by personnel who has undergone special training or instructions and/or who is authorized to work on explosion-protected devices in hazardous areas.*

⇨ Disconnect the supply voltage and depressurize the supply air line.

11 Removal

The work described in this chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

11.1 Removing the rail-mounting unit

1. Remove the pneumatic and electrical connections.
2. Remove the converter from the top-hat rail.

11.2 Removing the field unit

1. Remove the pneumatic and electrical connections.
2. Unscrew the four screws on the mounting bracket.
3. Remove the field unit.

12 Repairs

If the converter does not function properly according to how it was originally sized or does not function at all, it is defective and must be repaired or exchanged.

NOTICE

Risk of converter damage due to incorrect service or repair work.

⇨ *Do not perform any repair work on your own.*

⇨ *Contact SAMSON's After-sales Service.*

12.1 Servicing explosion-protected devices

If a part of the device on which the explosion protection is based needs to be serviced, the device must not be put back into operation until a qualified inspector has assessed it according to the requirements, has issued an inspection certificate or given the device a mark of conformity.

Inspection by a qualified inspector is not required if SAMSON performs a routine test on the device before putting it back into operation. Document the passing of the routine test by attaching a mark of conformity to the device.

Replace explosion-protected components only with original, routine-tested components by the manufacturer.

Devices that have already been used outside hazardous areas and are intended for future use inside hazardous areas must comply with the safety requirements placed on serviced devices. Before being operated inside hazardous areas, test the devices according to the specifications for servicing explosion-protected devices.

12.2 Returning the converter to SAMSON

Defective converters can be returned to SAMSON for examination. Proceed as follows to return converters:

1. Remove the converter (see Chapter 11).
2. Continue as described on our website at ▶ www.samsongroup.com > Service > After-sales Service > Returning goods.

13 Disposal



SAMSON is a producer registered in Europe, agency in charge
▶ www.samsongroup.com > About SAMSON > Environment, Social & Governance > Material Compliance > Waste electrical and electronic equipment (WEEE)
WEEE reg. no.: DE 62194439

Information on substances listed as substances of very high concern (SVHC) on the candidate list of the REACH regulation can be found in the document “Additional Information on Your Inquiry/Order”, which is added to the order documents, if applicable. This document includes the SCIP number assigned to the devices concerned. This number can be entered into the database on the European Chemicals Agency (ECHA) website (▶ https://www.echa.europa.eu/scip-database) to find out more information on the SVHC contained in the device.

Note

SAMSON can provide you with a recycling passport on request. Simply e-mail us at aftersalesservice@samsongroup.com giving details of your company address.

Tip

On request, SAMSON can appoint a service provider to dismantle and recycle the product as part of a distributor take-back scheme.

⇨ Observe local, national and international refuse regulations.

⇨ Do not dispose of components, lubricants and hazardous substances together with your other household waste.

14 Certificates

The following certificates are included on the next pages:

– EU declarations of conformity

– EU type examination certificate

The certificates shown were up to date at the time of publishing. The latest certificates can be found on our website:

▶ www.samsongroup.com > Products > Signal converters > 6111

SMART IN FLOW CONTROL.

SAMSON

EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/
This declaration of conformity is issued under the sole responsibility of the manufacturer/
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.

Für das folgende Produkt / For the following product / Nous certifions que le produit

i/p-Umformer / i/p-Converter / Convertisseur i/p
Typ/Type/Type 6111

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29
Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

i v. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

i.V. Dirk Hoffmann

Dirk Hoffmann
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklungsorganisation/Development Organization

ce_6111-0_de_en_fra_rev07.pdf

SMART IN FLOW CONTROL.

SAMSON

EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/
This declaration of conformity is issued under the sole responsibility of the manufacturer/
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.

Für das folgende Produkt / For the following product / Nous certifions que le produit

i/p-Umformer / i/p-Converter / Convertisseur i/p
Typ/Type/Type 6111-1...

entsprechend der EU-Baumusterprüfbescheingung PTB 01 ATEX 2174 ausgestellt von der/
according to the EU Type Examination PTB 01 ATEX 2174 issued by/
établi selon le certificat CE d'essais sur échantillons PTB 01 ATEX 2174 émis par:

Physikalisch Technische Bundesanstalt
Bundesallee 100
D-38116 Braunschweig
Benannte Stelle/Notified Body/Organisme notifié 0102

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
Explosion Protection 94/9/EC (bis/to 2016-04-19) Explosion Protection 2014/34/EU (ab/from 2016-04-20)	EN 60079-0:2009, EN 60079-11:2012
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

i v. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

i.V. Dirk Hoffmann

Dirk Hoffmann
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklungsorganisation/Development Organization

ce_6111-1_de_en_fra_rev07.pdf

SMART IN FLOW CONTROL.

SAMSON

EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/
This declaration of conformity is issued under the sole responsibility of the manufacturer/
La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.

Für das folgende Produkt / For the following product / Nous certifions que le produit

i/p-Umformer / i/p-Converter / Convertisseur i/p
Typ/Type/Type 6111-8...

entsprechend der EU-Baumusterprüfbescheingung PTB 02 ATEX 2013 X ausgestellt von der/
according to the EU Type Examination PTB 02 ATEX 2013 X issued by/
établi selon le certificat CE d'essais sur échantillons PTB 02 ATEX 2013 X émis par:

Physikalisch Technische Bundesanstalt
Bundesallee 100
D-38116 Braunschweig
Benannte Stelle/Notified Body/Organisme notifié 0102

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
Explosion Protection 94/9/EC (bis/to 2016-04-19) Explosion Protection 2014/34/EU (ab/from 2016-04-20)	EN 60079-0:2009, EN 60079-15:2010
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

Im Namen des Herstellers/ On behalf of the Manufacturer/ Au nom du fabricant.

i v. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

i.V. Dirk Hoffmann

Dirk Hoffmann
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklungsorganisation/Development Organization

ce_6111-8_de_en_fra_rev07.pdf

Physikalisch-TechnischBundesanstalt
Braunschweig und Berlin

PTB

T R A N S L A T I O N

(1) **Statement of Conformity**

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

(3) EC Type Examination Certificate Number

PTB 02 ATEX 2013 X

(4) Equipment: Model 6111-8.. i/p-Converter

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3, 60314 Frankfurt am Main, Germany

(7) The equipment and any acceptable variation thereof are specified in the schedule to this certificate and the documents referred to therein.

(8) The Physikalisch-Technische Bundesanstalt, notified body number 0102 according to Article 9 of the Council Directive 94/9/ 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 02-21420

(9) The essential health and safety requirements are satisfied by compliance with

EN 50021: 1999

(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) In compliance with the Directive 94/9/EC this Statement of Conformity relates only to the dessign and consturciton of the equipment specified. Further requirements of this Directive apply to manufacture and marketing of this equipment.

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

II 3 G EEx nA II T6

Zertifizierungsstelle Explosionsschutz Braunschweig,.....
By order

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirketor

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

Physikalisch-Technische Bundesanstalt Bundesallee 100 D-38116 Braunschweig

(13) **S c h e d u l e**

(14) **Statement of Conformity PTB 02 ATEX 2013 X**

(15) **Description of Equipment**

The Model 6111-8.. i/p-Converter is composed of an i/p module and a downstream pneumatic converter and serves to convert a load-independent current of 1 to 5mA or (0)4 to 20mA respectively into a standard pressure signal of 0.2 to 1bar or 0.4 to 2bar respectively.

The device is intended for use inside and outside of hazardous areas.

The correlation between temperature classification and permissible ambient temperature ranges is shown in the table below:

Temperature class		Permissible ambient temperature range
Temperatur class	T6	60°C
	T5	-45°C . . .70°C
	T4	80°C

Electrical data

Signal circuit (terminals 11/12) — Type of protection: EEx nA II

(16) Test report: **PTB Ex 02-21420**

(17) **Special conditions for safe use**

1. The Model 6111-8.. I/P-Converter shall be installed in an enclosure providing at least Degree of Protection IP 54 according to IEC Publication 60529:1989.

The wiring shall be connected in such a manner that the connection facilities are not subjected to tensile and/0r torsional stress.

(18) **Basic health and safety requirements**

Are satisfied by compliance with the standard specified above.

Zertifizierungsstelle Explosionsschutz — Braunschweig,
By order
(Signature) (seal)
Dr. Ing. U. Johannsmeyer
Regierungsdirektor

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstallt
Physikalisch-Technische Bundesanstalt Bundesallee 100 D-38116 Braunschweig

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

TRANSLATION

(1) **EC TYPE EXAMINATION CERTIFICATE**

(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 2174

(4) Equipment: Model 6111-1 i/p Converter

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3, 60314 Frankfurt am Main, 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 01-21297

(9) The essential health and safety requirements are satisfied by compliance with

EN 50021: 1997 + A1 + A2 EN 50020: 1994

(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.

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

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

 **II 2 G EEx ia IIC T6**

Zertifizierungsstelle Explosionsschutz Braunschweig, 26 November 2001
By order

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirketor

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

(13) **S c h e d u l e**

(14) **EC TYPE EXAMINATION CERTIFICATE No. PTB 01 ATEX 2174**

(15) **Description of Equipment**

The model 6111-1.. i/p-Converter is composed of an i/p module and a downstream pneumatic converter and serves for converting a load-independent current of 1 to 5 mA or (0)4 to 20 mA respectively into a standard pressure signal of 0.2 to 1 bar or 0.4 to 2 bar respectively.

The Model 6111-1.. i/p Converter is a passive two-terminal network which may be connected to any certified intrinsically safe circuit, provided the permissible maximum values of Ui, Ii and Pi are not exceeded.

The correlation between temperature classification, permissible ambient temperature ranges and maximum short-circuit currents is shown in the table below:

Temperature class	Permissible ambient temperature range	Maximum short-circuit current
T6	-45 °C ... 60 °C	85 mA or
T5	-45 °C ... 70 °C	100 mA or
T4	-45 °C ... 80 °C	120 mA

Electrical data

Signal circuit (terminals 11/12): Type of protection. Intrinsic safety EEx ia IIC only for connection to a certified intrinsically safe circuit

Maximum values

U_i = 28 V
I_i = 100 mA or 85 mA
P_i = 0,7 W

or
U_i = 25 V
I_i = 120 mA
P_i = 0,7 W

C_i = negligible, L_i = negligible

(16) Test report **PTB Ex 01-21297**

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

(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, 26 November 2001

(Signature) (seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor

Statements of Conformity without signature and seal are invalid. This Statement of Conformity may be reproduced only in its entirety without any changes.
Extracts or changes shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

15 Appendix

15.1 Accessories

The item numbers in parentheses (x) are listed in Fig. 16.

Table 5: *Accessories/spare parts · Connecting plate/adapter plate*

Article	Order no.
Connecting plate with hose connection (without coupling nut, 15) M10x1 coupling nut for hose connection (15) Connecting plate ⅛ NPT (15) Connecting plate G ⅛ (15) Adapter plate for supply air manifold (16)	0360-2950 0250-1831 0360-3251 0360-3250 0360-3096
3x12 mm screw for connecting plate with hose connection 3x16 mm screw for connecting plate (NPT and G) 3x10 mm screw for adapter plate for supply air manifold	8336-0728 8336-0730 8336-0727
Male screw fitting G ⅛ on hose with 4 mm inside diameter and 6 mm outside diameter, brass Male screw fitting ¼ NPT on hose with 4 mm inside diameter and 6 mm outside diameter, brass	8582-1450 8582-1523
Sintered filter for SUPPLY and OUTPUT connection	0550-0653
Seal for SUPPLY and OUTPUT connection	0430-1134

Table 6: *Accessories · Field unit*

Article	Order no.
Mounting bracket (stainless steel) including two M6x12 hex head screws and washers to mount the field unit to the bracket (included in the scope of delivery)	1400-7432

Table 7: *Accessories · Converter units*

Article		3	4	5	6
		Order no.			
Supply air manifold (basic version) including two G ¼ connectors		1400-			
	With one screw plug	7266	7273	7280	7287
	With pressure gauge (0 to 10 bar)	7269	7276	7283	7290
	With pressure gauge (0 to 10 bar) and air blocker	7270	7277	7284	7291
Supply air manifold with hose push-on fittings for outputs (hose with 4 mm inside and 6 mm outside diameter) and supply air (hose with 8 mm inside and 10 mm outside diameter)		1400-			
	With one screw plug	7267	7274	7281	7288
	With pressure gauge (0 to 10 bar) and air blocker	7271	7278	7285	7291
Supply air manifold with hose screw fittings for outputs (hose with 4 mm inside and 6 mm outside diameter) and supply air (hose with 8 mm inside and 10 mm outside diameter)		1400-			
	With one screw plug	7268	7275	7282	7289
	With pressure gauge (0 to 10 bar) and air blocker	7272	7279	7286	7293
Coupling (5) to connect supply air manifolds including two NBR seals (4)		1400-7294			

Table 8: *Accessories/spare parts · Supply air manifold*

Article	Thread	Connection for hose D/d [1]	Length in mm, mounted	Order no.
Pressure gauge, 0 to 6 bar (1), NG 40 Pressure gauge, 0 to 10 bar (1), NG 50 Air blocker (11) Connector (3) Connector G ¼ (3) Seal for connector (14x2.5 mm), NBR (4)	G ¼ A G ¼ A G ¼ G ¼	–	27 27 30 20	8520-0019 8520-1058 8502-0044 – 0230-2581 8421-0347
Hose screw fitting, output (7a) Hose push-on fitting, output (7b) Washer (7.1)	G ⅛ A G ⅛ A	D/d = 6/4 D/d = 6/4	19 13	8582-1450 8582-1563 8414-0136
Hose screw fitting, supply air (10a) Seal (10.1), hose connection Hose push-on fitting, supply air (10b)	G ¼ A G ¼ A	D/d = 10/8 D/d = 10/8	21 23	8582-1735 8414-0140 8582-1564
Connecting plate, standard (15) Connecting plate, supply air manifold (16)	D 6 hose, mounting on supply air manifold			0360-2950 0360-3096
Screw plug (2) M4x6 grub screw (6) M4x6 cap screw (8) 3 x 2.7 mm O-ring, NBR (9)				8323-0005 8324-0605 8333-0495 8421-0235

1) D = Outside diameter
d = Inside diameter

15.2 After-sales service

Contact our after-sales service for support concerning service or repair work or when malfunctions or defects arise.

You can reach our after-sales service at the following e-mail address:

▶ aftersalesservice@samsongroup.com

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on our website (▶ www.samsongroup.com) or in all product catalogs.

Please submit the following details:

- Type designation
- Model number
- Configuration ID
- Serial number

EB 6111 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

2026-06-08 | English | 4000299861 | 1.4