

MOUNTING AND OPERATING INSTRUCTIONS

SAMSON

EB 6116 EN

Translation of original instructions



Type 6116 Electropneumatic Converter for Direct Current Signals

CE Ex
certified

Edition April 2025

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 these instructions, 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

i Note

Additional information

💡 Tip

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1 Safety instructions and measures

Intended use

The Type 6116 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 6116) 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 6116) 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 6116) 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 6116) 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 6116) with a CE marking fulfills the requirements of the following Directives:

Safety instructions and measures

(Type 6116-0)

(Type 6116-1 and -2)

The declarations of conformity and certificates are included in Chapter 14.

For electrical installation, 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.

⇒ For installation in hazardous areas, observe the relevant standards that apply in the country of use.

Standard 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_o , I_i or I_o , P_i or P_o , C_i or C_o and L_i or L_o).

Referenced documents

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

- Safety Manual ► SH 6116

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 6116) 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. Observe 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.

⚠ DANGER

Loss of Ex d protection due to opening the enclosure cover or damage to the cover's thread and/or the connecting thread.

- ⇒ The enclosure cover must be firmly closed during operation.
- ⇒ Put the converter out of operation when its cover thread or connecting thread is damaged. Replace it with a new device.

1.2 Notes on possible personal injury

⚠ WARNING

The device (Type 6116) 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 > Material Compliance > REACH.

⚠ WARNING

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

Over time, markings, labels and nameplates on the actuator 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 which impairs 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.

Markings on the device

2 Markings on the device

2.1 Nameplate

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

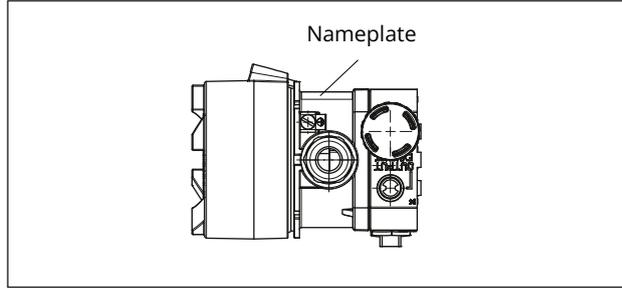
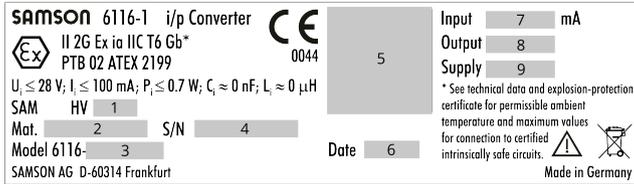
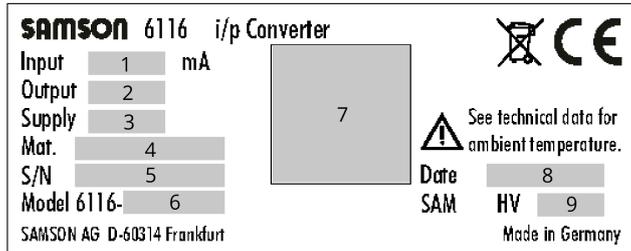


Fig. 1: Location of the nameplate · Type 6116



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



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

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 is affixed with grooved pins to the side of the i/p converter.

2.2 Article code

		Type 6116-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Explosion protection																	
	Without		0														
	ATEX ^{1) 2)14)} II 2G Ex ia IIC T6 Gb		1								1/2						
	ATEX ³⁾ II 2G Ex d IIC T6; II 2G Ex d IIC T6/T5/T4 Gb		2														
	CSA ⁵⁾¹²⁾ Class I, Groups B, C, D;		3				0	1...5		1/2		0...3					
	Class II, Groups E, F, G;																
	Class III; Type 4 Enclosure ¹⁵⁾¹⁸⁾																
	FM ¹⁾ Class I, Groups B, C, D;									1		0/3					
	Class II, Groups E, F, G;																
	Class III																
	CSA ¹⁾¹⁴⁾ Ex ia IIC T6; Class I, Zone 0:		4									3					
	Class I, Div. 1, Groups A, B, C, D;																
	Class II, Div. 1, Groups E, F, G; Class III;																
	Class I, Div. 2, Groups A, B, C, D;																
	Class II, Div. 2, Groups E, F, G; Class III;																
	Type 4 Enclosure																
	FM ¹⁾¹⁴⁾ IS, Class I, II, III; Div. 1, Groups A–G;																
	Class I, Zone 0, AEx ia IIC;																
	NI, Class I, Div. 2, Groups A, B, C, D;																
	Type 4X Enclosure																
	IECEX ⁴⁾⁶⁾ Ex d IIC T6/T4		5				0	1/2		1		0/2					
	IECEX ¹⁾¹⁴⁾ Ex ia IIC T6; Ex nA IIC T6		6	2								2					
	JIS ⁴⁾¹⁵⁾ Ex d IIC T6		7				0	1/2									
i/p converter module																	
	Type 6109 ⁴⁾			1	0	1	0	1	1								
	Type 6112			2													
Input																	
	4 to 20 mA				0	1											
	4 to 12 mA ¹⁾¹¹⁾			2	0	3											
	12 to 20 mA, without switch-off electronics ¹⁾⁷⁾¹¹⁾			2	0	4											
	0 to 20 mA, without switch-off electronics ⁷⁾			2	0	5											
	4 to 20 mA, without switch-off electronics ⁷⁾ for positioner attachment				0	6											
Output																	
	0.2 to 1.0 bar						0	1									
	3 to 15 psi						0	2									
	0.4 to 2.0 bar			2			0	4									
	6 to 30 psi			2			0	5									
Special ranges⁸⁾																	
	Lower range value/span Δp																
	0.1 to 0.4 bar/0.75 to 1.00 bar (6112, Module A)			2			1	1		1							
	0.1 to 0.4 bar/1.00 to 1.35 bar (6112, Module B)			2			1	2		2							
	0.1 to 0.4 bar/1.35 to 1.81 bar (6112, Module C)			2			1	3		3							
	0.1 to 0.8 bar/1.81 to 2.44 bar (6112, Module D)			2			1	4		4							
	0.1 to 0.8 bar/2.44 to 3.28 bar (6112, Module E)			2			1	5		5							
	0.1 to 0.8 bar/3.28 to 4.42 bar (6112, Module F)			2			1	6		6							
	0.1 to 1.2 bar/4.42 to 5.94 bar (6112, Module G)			2			1	7		7							
	0.1 to 1.2 bar/5.94 to 8.00 bar (6112, Module H)			2			1	8		8							
Direction of action																	
	Increasing/increasing							1									
	Increasing/decreasing ¹⁾							2									

Markings on the device

Electrical connection															
½ - 14 NPT								1							
M20x1.5								2							
Pneumatic connection															
Positioner attachment (without booster) ⁹⁾			0	6	0	1	1	0	0	0					
¼ - 18-NPT									1						
ISO-228/1 - G ¼									2						
Degree of protection															
Without (vent plug for positioner attachment)			0	6	0	1	1	0	0	0					
IP54									1						
IP65									2						
Type 4 ¹⁰⁾									3						
Output pressure gauge															
Without										0					
With ¹⁾										1					
Temperature															
T _{min} ≥ -25 °C (standard version of Type 6109)		1									0				
T _{min} ≥ -45 °C (Type 6112 with metal cable gland, subjected to a routine test)		2									1				
T _{min} ≥ -40 °C (standard version of Type 6112)		2									2				
Special version															
Without											0	0	0		
IECEX approval: Ex d IIC T6/T5/T4 Gb		2									2	5	1		
EAC Ex approval: on request		1/2									2	5	2		
KCS approval, Korea: on request		5									2	6	2		
Zero raised to a range between 0.4 and 1.5 bar/6 and 22 psi ¹⁶⁾											3	0	0		
Zero raised to a range between 1.5 and 3.0 bar/23 and 44 psi ¹⁷⁾											3	0	1		

¹⁾ Not for positioner attachment

²⁾ With degree of protection IP54/IP65 only

³⁾ Supply pressure max. 6 bar; output max. 5.6 bar (not possible with 6112, Module H)

⁴⁾ Only with output 0.2 to 1 bar/3 to 15 psi, supply pressure max. 6 bar

⁵⁾ With ½ NPT electrical connection, degree of protection Type 4 or positioner attachment

⁶⁾ With ½ NPT electrical connection, degree of protection IP65 or positioner attachment

⁷⁾ Without switch-off electronics and without potentiometer for zero point and span correction

⁸⁾ Specify setting range, e.g. "set to 0.1 to 4 bar"; output pressure max. 8 bar. Lower range value raised to max. 3.0 bar (special version)

⁹⁾ Only with Ex d or explosion-proof according to CSA and FM standards

¹⁰⁾ Only explosion-proof or intrinsically safe according to CSA and FM standards

¹¹⁾ 4 to 12 mA and 12 to 20 mA input only up to 4.0 bar span

¹²⁾ Only with output 0.2 to 1 bar/3 to 15 psi and 0.4 to 2 bar/6 to 30 psi, supply pressure max. 6 bar

¹³⁾ Type 6116-3: version T_{min} = -45 °C only FM certification Class I, Div. 1, Groups B, C, D

¹⁴⁾ Max. output pressure 2.0 bar not possible with Modules E, F, G, H

¹⁵⁾ No longer available

¹⁶⁾ Switch-off electronics only effective under certain conditions; Types 6116-0, 6116-1 (ATEX) (Modules A, B, C) and Type 6116-4 (Modules A, B, C)

¹⁷⁾ Switch-off electronics only effective under certain conditions; Types 6116-0 and 6116-2 only (ATEX)

¹⁸⁾ Not possible with 6112, Modules E, F, G and H

3 Design and principle of operation

The Type 6116 i/p Converter is used to convert a direct current input signal into a pneumatic output signal for measuring and control tasks. The converter consists of a Type 6109 or Type 6112 i/p Converter Module and a downstream volume booster. The input signal of the device is a load-dependent direct current from 4 to 20 mA or 0 to 20 mA. The output signal is a signal pressure from 0.2 to 1 bar or other ranges up to max. 8 bar.

Principle of operation (see Fig. 4)

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 (7).

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

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.

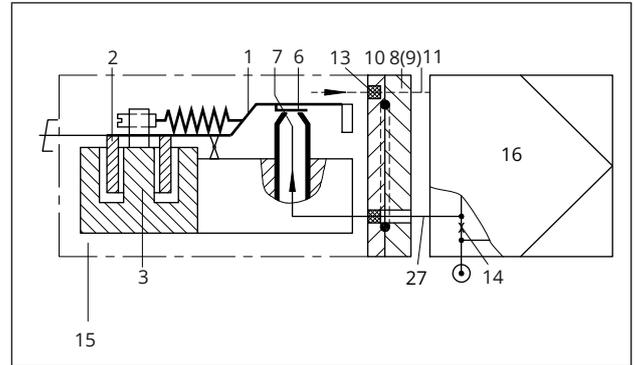


Fig. 2: Functional diagram of version mounted on a positioner

- 1 Balance beam
- 2 Plunger coil
- 3 Permanent magnet
- 6 Flapper plate
- 7 Nozzle
- 8 Connecting piece (3766)
- 9 Connecting piece
- 10 O-ring
- 11 Vent plug
- 13 Flame protection filter
- 14 Restrictor with air supply
- 15 Type 6116
- 16 Positioner
- 27 Input signal 27
- ☉ Supply air

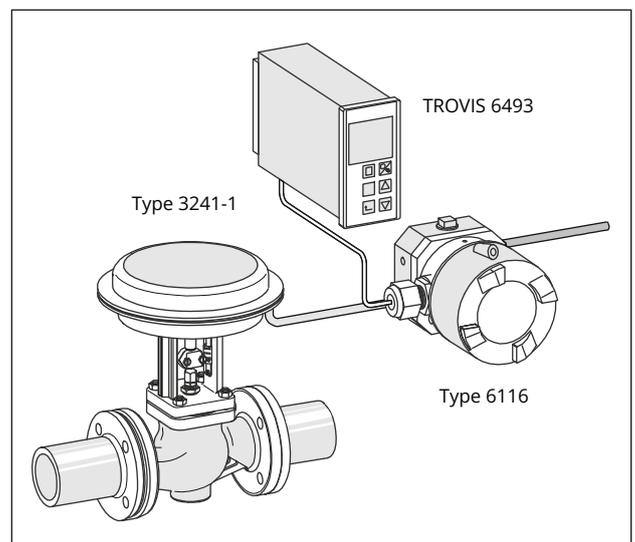


Fig. 3: Application

Switch-off electronics

Devices with an input range from 4 to 20 mA have a slide switch which activates the switch-off electronics (see Fig. 5). This function allows the input signal to be set to 0 mA when the signal falls be-

Design and principle of operation

low the switching point of 4.08 mA. 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 at an output signal of 0.2 to 1 bar.

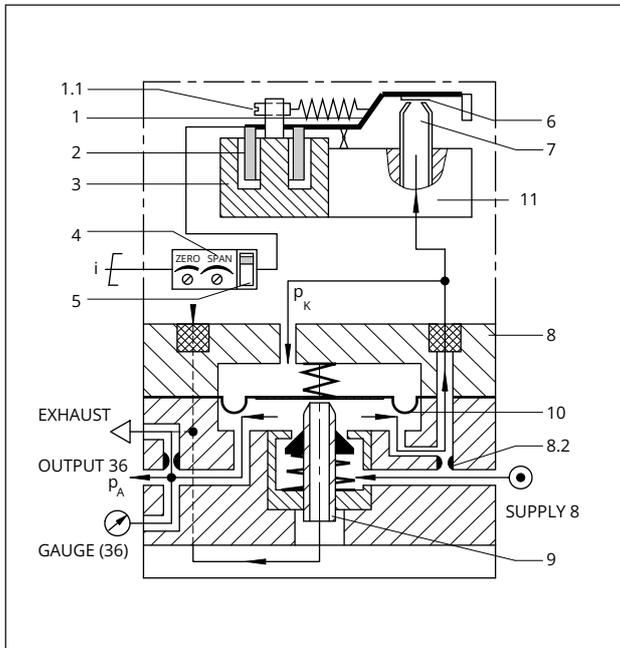


Fig. 4: Functional diagram

- 1 Balance beam
- 1.1 Zero point adjuster (Type 6112; only in version without electronics)
- 2 Plunger coil
- 3 Permanent magnet
- 4 Zero and span potentiometers (only in version with electronics)
- 5 Slide switch for switch-off electronics (only in version with electronics)
- 6 Flapper plate
- 7 Nozzle
- 8 Volume booster
- 8.2 Fixed restriction
- 9 Sleeve
- 10 Diaphragm
- p_A Output pressure
- p_K Backpressure (cascade pressure)
- 11 Type 6109/6112 i/p Module
- Supply air

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 are activated.

3.1 Versions

i Note

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

Versions for safe areas

Type 6116-0...

Versions for hazardous areas

Type 6116-1...	Ex i acc. to ATEX and GOST (EAC)
Type 6116-2...	Ex d acc. to ATEX, IEC and GOST (EAC)
Type 6116-3...	Explosion-proof acc. to CSA and FM standards
Type 6116-4...	Intrinsically safe according to CSA and FM standards
Type 6116-5...	Explosion-proof/IEC/Australia/Korea
Type 6116-6...	Intrinsically safe/IEC/Australia
Type 6116-7...	Ex d according to JIS standard/Japan

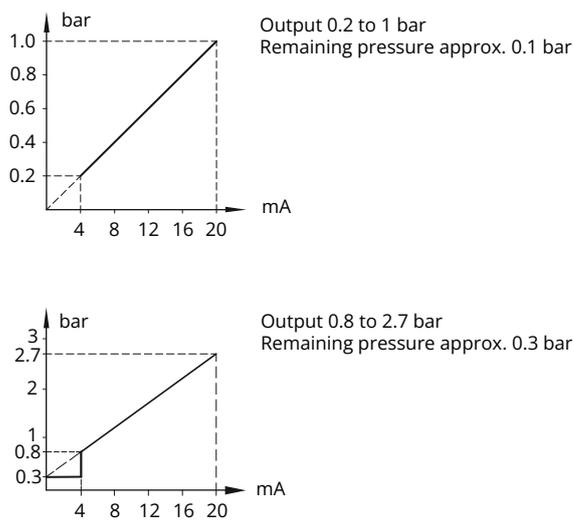


Fig. 5: Output and remaining pressure

Further versions

Type 6116-x2xxxxxxxxx1...	Temperatures down to -45 °C	
Type 6116-0...	AS-interface connection with Type 6150 Slave Voltage input (e.g. 0 to 10 V) with Type 6151 u/i Module	
i/p converter without booster unit or switch-off electronics	Converters can be combined with SAMSON Type 3760 , Type 3766-000 (model index .02 and higher) and Type 4765 Pneumatic Positioners (see Chapter 5.4).	
Type 6116-xx060111000...	Attachment to p/p positioners (½ NPT electrical connection)	
Type 6116-xx060112000...	Attachment to p/p positioners (M20x1.5 electrical connection)	
Type 6116-xx06011x000xxxx (for positioner attachment) (with Type 6109 i/p Converter Module only)	Input:	4 to 20 mA ¹⁾ , internal resistance approx. 200 Ω at 20 °C
	Output:	0.2 to 1 bar for positioner

¹⁾ Other signals on request

Other data same as standard version.

3.2 Technical data

Table 1: *Technical data*

Type	6116-0, without explosion protection
Types	6116-1/-2/-3/-4/-5/-6/-7 with explosion protection
Input ⁵⁾	4 to 20 mA, other signals on request Minimum current >3.6 mA, load impedance ≤6 V (corresponding to 300 Ω at 20 mA) Versions with explosion protection: Load impedance 7 V (corresponding to 350 Ω at 20 mA) Versions without switch-off electronics: R _i = 200 Ω ± 7.5 %
Output ⁵⁾	0.2 to 1 bar/3 to 15 psi (Type 6109 i/p Converter Module) 0.4 to 2 bar/6 to 30 psi (Type 6112 i/p Converter Module) Special ranges adjustable according to customer specifications:
	Output range = Lower range value ¹⁰⁾ + Span Δp with Type 6112 i/p Converter Module) 0.1 to 0.4 bar + 0.75 to 1.0 bar, Module A 0.1 to 0.4 bar + 1.0 to 1.35 bar, Module B 0.1 to 0.4 bar + 1.35 to 1.81 bar, Module C 0.1 to 0.8 bar + 1.81 to 2.44 bar, Module D 0.1 to 0.8 bar + 2.44 to 3.28 bar, Module E 0.1 to 0.8 bar + 3.28 to 4.42 bar, Module F 0.1 to 1.2 bar + 4.42 to 5.94 bar, Module G 0.1 to 1.2 bar + 5.94 to 8.0 bar, Module H ⁹⁾
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	At least 0.4 bar above the upper signal pressure range value, max. 10 bar without supply pressure regulator, max. 6 bar for Ex d version
Air quality acc. to ISO 8573-1: 2001	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 ²⁾	0.08 mn ³ /h at 1.4 bar 0.1 mn ³ /h at 2.4 bar Max. 0.26 mn ³ /h at 10 bar

Type	6116-0, without explosion protection
Types	6116-1/-2/-3/-4/-5/-6/-7 with explosion protection
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 up to 5 bar); more exact values on request ≤1.5 % of upper range value (for upper range values above 5 bar)
Influence in % of upper range value	Supply air: 0.1 %/0.1 bar ²⁾
	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	
Limiting frequency	5.3 Hz
Phase shift	-130°
Variable position	Max. 3.5 % depending on how the device is attached: ±1 % in horizontal position (Type 6109) Max. 1 % depending on how the device is attached: ±0.3 % in horizontal position (Type 6112)
Ambient conditions, degree of protection, compliance and weight	
Storage temperature	-45 to +80 °C
Ambient temperature ¹¹⁾	
With Type 6109	-30 to +70 °C; -30 to +60 °C ¹⁾
With Type 6112	-40 to +70 °C; -40 to +60 °C ^{1) 7)}
Degree of protection	IP54 ⁴⁾ , IP65 ⁸⁾ , Type 4
Conformity	
Explosion protection	
ATEX, IECEx, ...	See Chapter 15.1
Materials	
Body	Die-cast aluminum, chromated and plastic coated
Cable gland (standard) ¹²⁾	Black polyamide (6 to 12 mm clamping range, -20 to +80 °C)
Weight	
	0.85 kg
EMC	According to EN 50081-1 and EN 50081-2
RoHS compliance	According to EN 61000-6-2, EN 61000-6-3 and EN 61326-1
Conformity	CE

¹⁾ Details (including electric specifications and installation instructions) in Chapter 14 (EC type examination certificate)

²⁾ Measured with average output pressure

³⁾ Measured with hose with 4 mm inside diameter

⁴⁾ Observe recommended mounting position.

⁵⁾ See Chapter 3 when combined with a positioner

⁶⁾ Devices without explosion protection

⁷⁾ Special version lower than -45 °C on request

⁸⁾ Possible by using accessories

⁹⁾ The max. possible output pressure is 8 bar.

¹⁰⁾ Lower range value raised up to 3.0 bar (special version)

¹¹⁾ Metal cable glands and vent plugs are required for temperatures below -20 °C.

¹²⁾ Devices with type of protection "Flameproof enclosure" are delivered without cable gland.

3.3 Ex approvals

Table 2: Summary of explosion protection certificates for Type 6116

Type	Certificate	Number	Start	End	Type of protection
6116-1	ATEX	PTB 02 ATEX 2199	2003-03-07	-	II 2G Ex ia IIC T6 Gb
	TR MCU	ZETC/38/2021	2021-07-26	-	II 2G Ex ia IIC T6 Gb
		ZETC/27/2024	2024-04-22	2027-08-24	
GOST	RU C-DE.HA65.B.00701/20	2020-08-19	2025-08-18	1Ex ia IIC T6...T4 Gb X	
6116-2	ATEX	PTB 98 ATEX 1024 X	2002-07-03	-	II 2G Ex db IIC T* Gb
		BVS 14 ATEX E 104 X	2014-06-27	-	II 2G Ex db IIC T* Gb
	TR CMU	ZETC/38/2021	2021-07-26	-	II 2G Ex d IIC T* Gb
		ZETC/027/2024	2024-04-22	2027-08-24	
	GOST	RU C-DE.HA65.B.00701/20	2020-08-19	2025-08-18	1Ex d IIC T6...T4 Gb X
	IECEX	IECEX BVS 14.0066 X	2014-07-01	-	Ex d IIC T* Gb
6116-3	CSA	1471157	2014-11-14	-	Class I, Groups B,C,D; Class II, Groups E,F,G; Class III; Type 4 Enclosure
	FM	FM21US0094X	2022-02-17	-	Class I, Div 1, Grps B, C, D; T6 Ta = -45°C to +60°C; Type 4X or Class I, Grps B, C, D; Class II, Grps E, F, G; Class III; T6 Ta = -40°C to +60°C; Type 4X
6116-4	CSA	1607866	2024-06-17	-	Ex ia IIC T6: Class I, Zone 0; Class I, Div. 1, Groups A,B,C,D; Class II, Div. 1, Groups E,F,G; Class III; Class I, Div. 2, Groups A,B,C,D; Class II, Div. 2, Groups F,G; Class III; Type 4 Enclosure
	FM	FM24US0232	2025-01-02	-	IS, Class I,II,III; Div.1, GP A,B,C,D,E,F,G T* Type 4X IS, Class I, Zn 0, AEx ia IIC, T* NI, Class I, Div.2, GP A,B,C,D,F,G T* T* = Temperature Class and Ambient Temperature Range per Dwg. Adden- dum to EB 6116 EN
6116-5	IECEX	IECEX TSA 05.0015	2005-04-22	-	Ex d IIC T6/T4
	KCS	11-KB4BO-0213	2011-10-24	2025-10-24	Ex d IIC T6/T4
6116-6	IECEX	IECEX TSA 05.0008X	2005-04-04	-	Ex ia IIC T6 Ex nA IIC T6

3.4 Dimensions

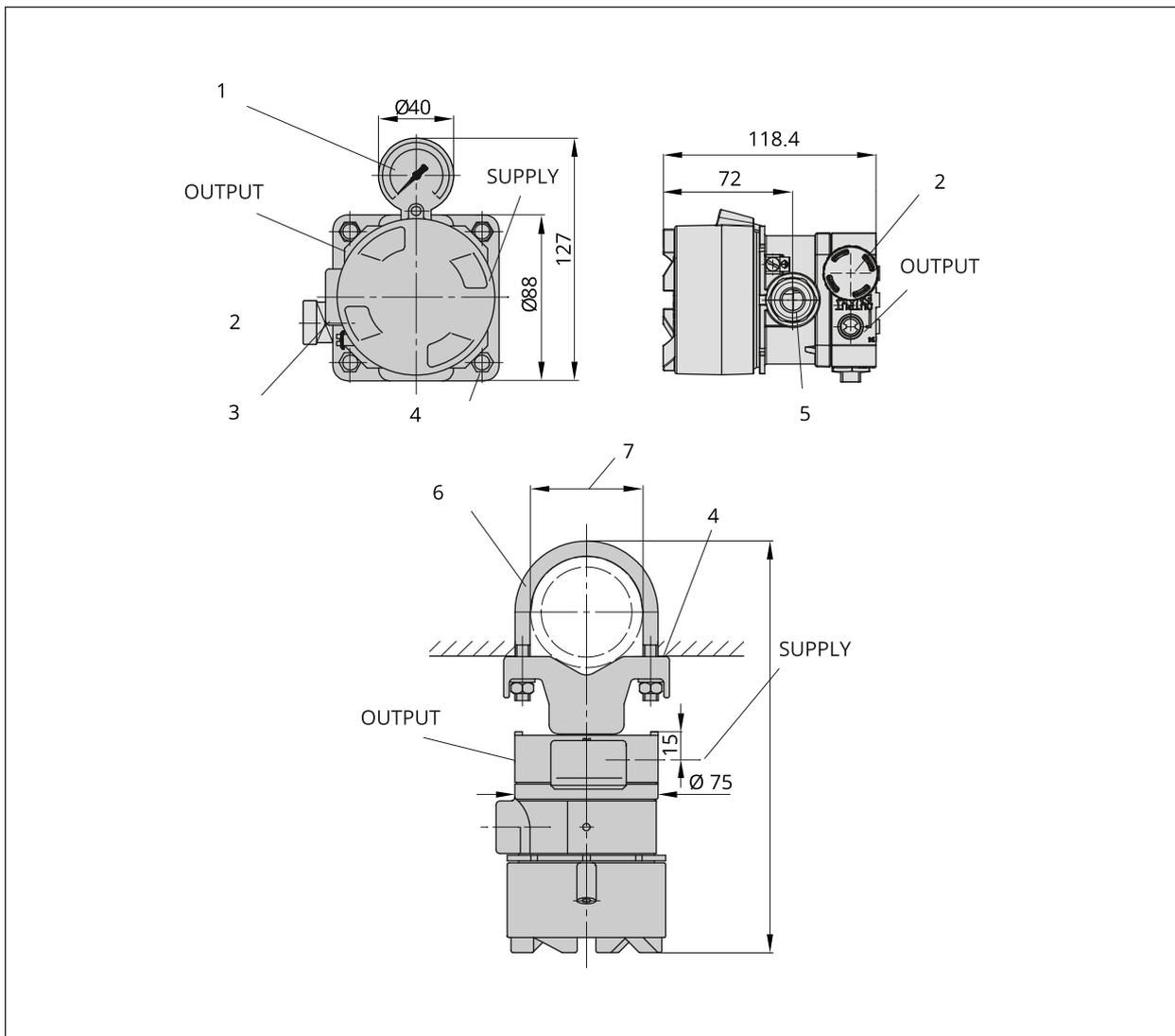


Fig. 6: Dimensions in mm · Wall and pipe mounting

- 1 Pressure gauge
- 2 Exhaust (vent plug) IP65
- 3 M20x1.5 or ½-14 NPT for electrical connection
- 4 Wall mounting
- 5 Cable gland
- 6 Clamp for attachment to 2" pipe
- 7 Ø 2" pipe

Design and principle of operation

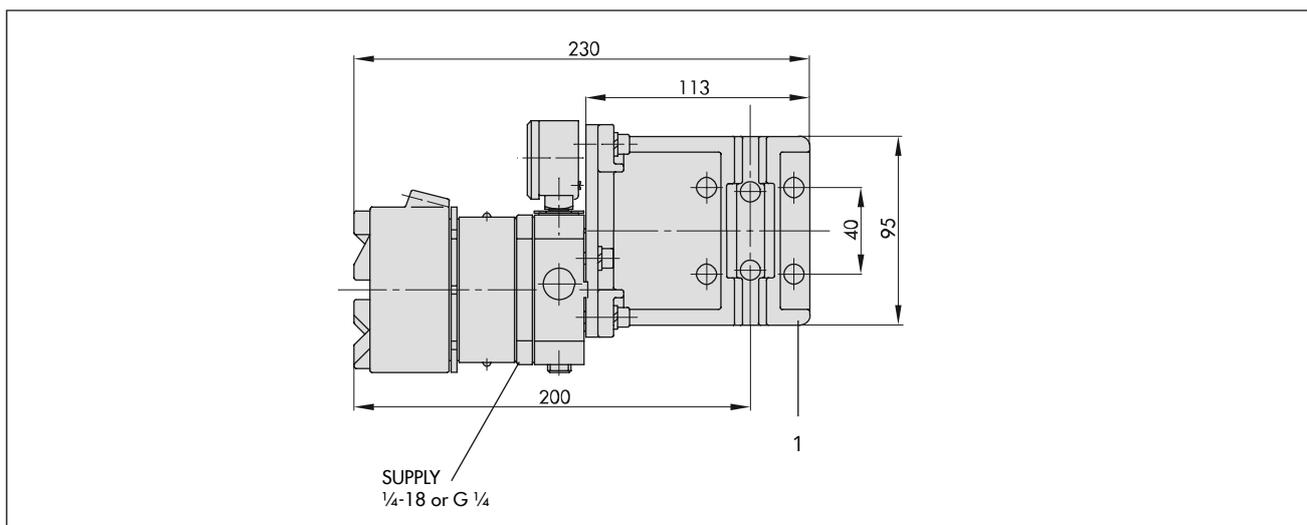


Fig. 7: Dimensions in mm · Version with yoke

1 Valve attachment

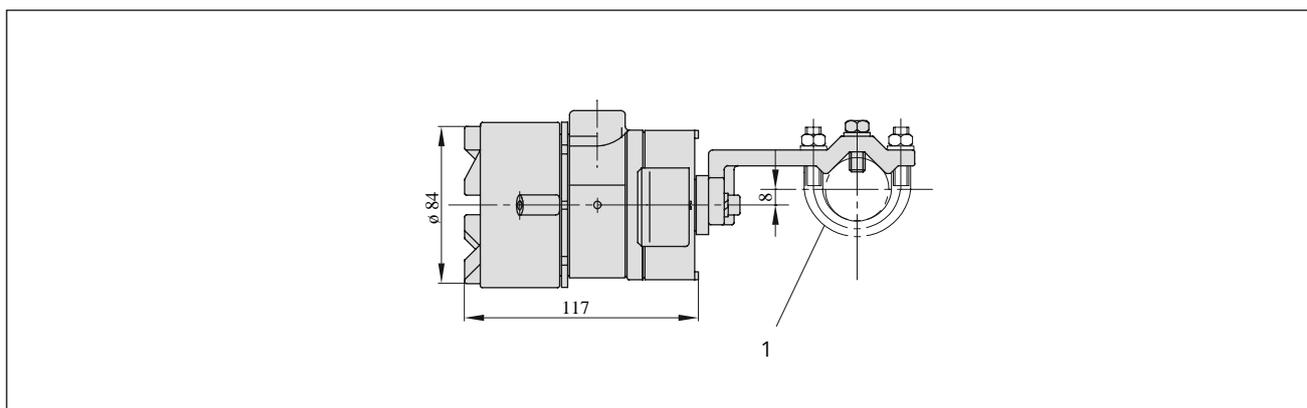


Fig. 8: Dimensions in mm · Version with rod-type yoke

1 Attachment to valves with rod-type yokes

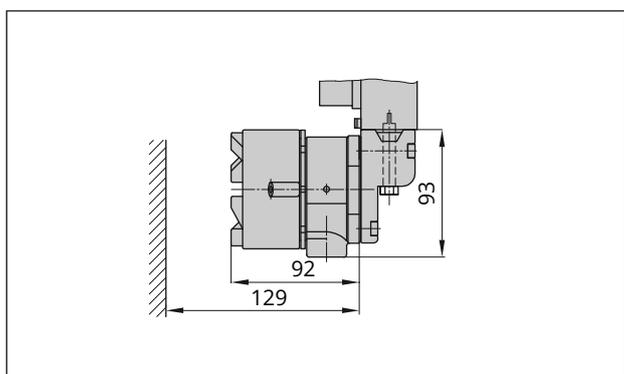


Fig. 9: Dimensions in mm · Type 6116-xx06011x000xxxx without booster unit with Type 3766-000 Positioner

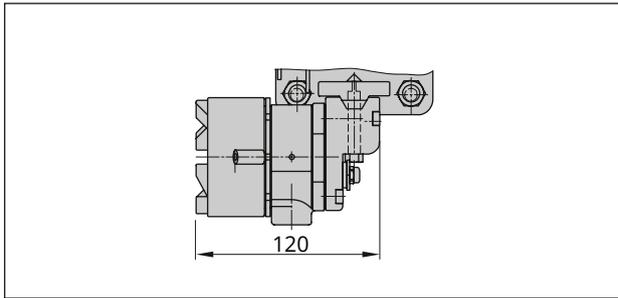


Fig. 10: Dimensions in mm · Type 6116-xx06011x000xxxx without booster unit (attachment according to NAMUR with Type 4765/3760)

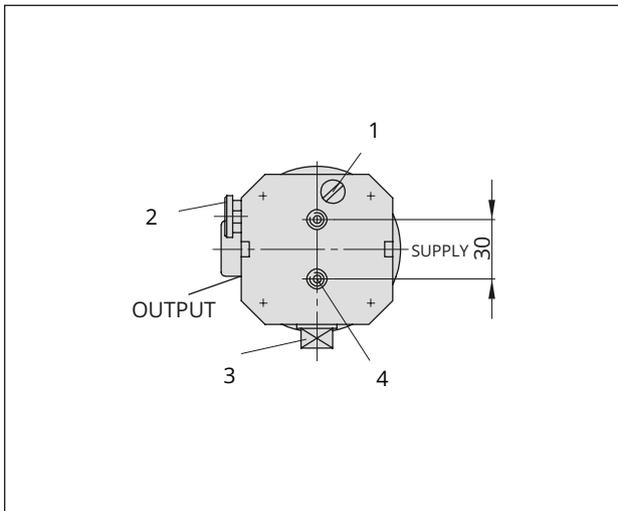


Fig. 11: Dimensions in mm · Rear view of Type 6116 without mounting parts

- 1 Restrictor
- 2 Exhaust (vent plug) IP54
- 3 Pressure gauge connection
- 4 M6, 10 deep

Design and principle of operation

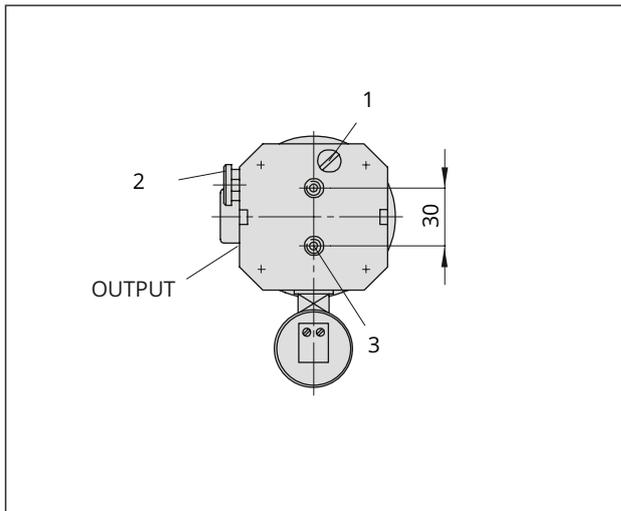


Fig. 12: Dimensions in mm · Rear view of Type 6116 with booster unit

- 1 Restrictor
- 2 Exhaust (vent plug) IP54
- 3 M6, 10 deep

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.

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 Installation

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.*

5.1 Installation conditions

- ⇒ Install the converter horizontally with the pressure gauge (or screw plug) facing upward.
- ⇒ For devices with IP54 rating, make sure the vent plug is installed facing downward to the floor.

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

- ⇒ Install the converter horizontally with the pressure gauge (or screw plug) facing upward.
- ⇒ For devices with IP54 rating, make sure the vent plug is installed facing downward to the floor.

5.2 Preparation for installation

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

- The converter is not damaged.
- The 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

The i/p converter can be mounted to a wall, pipe or directly to a control valve (see Fig. 13). Certain mounting accessories are required depending on the type of mounting (see Chapter 15.1).

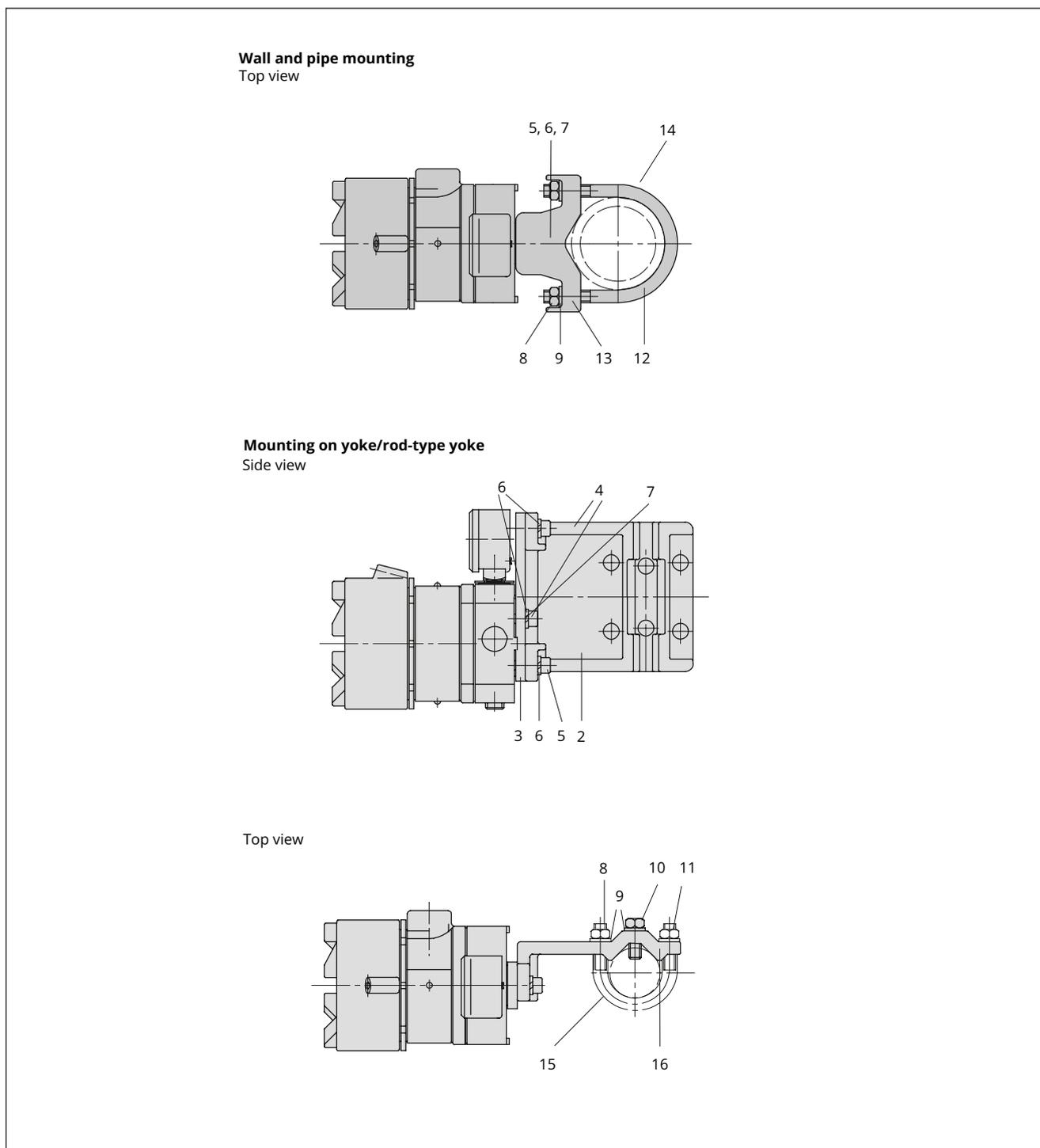


Fig. 13: Mounting

- 2 Plate
- 3 Rail
- 4 M6x16 screw
- 5 M6x25 screw
- 6 Spring washer B6
- 7 A6.4 washer
- 8 M8 nut
- 9 A8.4 washer
- 10 M8x25 screw

Installation

- 11 Clamp
- 13 Wall or pipe bracket
- 14 Clamp for attachment to 2" pipe
- 15 Mounting on rod-type yoke
- 16 Mounting on yoke

- ⇒ Mount the converter horizontally using the connecting piece (8, 9) onto the control valve or positioner. In this case, the cable entry must face sideways away from the control valve or positioner.
- ⇒ Make sure the O-ring (10) used to seal the enclosure is inserted correctly.

5.4 Mounting the i/p converter to positioners

Analog positioners with Ex d explosion protection can be implemented by combining a p/p positioner with a Type 6116-2 (Ex d) Converter. In the Type 6116 Converter version designed for positioner attachment, a booster is not used. Instead, the connection is used to connect the positioner. Another application involves upgrading p/p positioners to electropneumatic positioners (current signal input instead of the pneumatic signal).

- **Type 6116-xx010111000xxxx** with ½ NPT electrical connection
 - **Type 6116-xx101012000xxxx** with M20x1.5 electrical connection
- ⇒ See Chapter 15.1 for accessories to combine with a positioner

5.5 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.

ⓘ NOTICE

Compliance with the specified degree of protection not achieved due to insufficient sealing of the terminal compartment.

Leakage to the terminal space may impair the degree of protection.

- ⇒ Make sure that the cable entries are sealed and the cover is locked in position during operation.

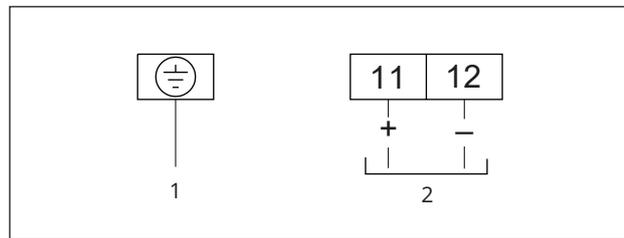


Fig. 14: Electrical connection · Type 6116

- 1 Grounding conductor (PE)
- 2 4 to 20 mA input

- ⇒ 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.

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_o , I_i or I_o , P_i or P_o , C_i or C_o and L_i or L_o).

Connection

1. Unscrew the enclosure cover.
2. Connect the wires for the input signal to the terminals 11 (+) and 12 (-) using suitable cable glands or connectors.

i Note

An additional supply voltage is not required.

Ex d version:

Connect the device with an approved metal cable entry (certificate of conformity) or a seal box pipe. Fit approved versions (certificate of conformity) with permanently sealed cable entries.

3. Connect the PE grounding conductor to the ground terminal located either inside or outside the enclosure.
4. Check the O-ring for damage.
5. Screw on the cover as far as it will go. Unscrew the cover until the first possible safety position (notch) is reached.
6. To lock the cover in position, tighten the cap screw.

5.6 Pneumatic connection

i/p converter installed

The supply air must meet the following requirements:

- Min. +0.4 bar above the upper signal pressure range value
- Max. 10 bar
Type 6116-2: max. 6 bar (see EC type examination certificate in Chapter 14)
- Dry, free of oil and dust (see Chapter 3.2)

The pneumatic connections for supply air (SUPPLY 8) and output (OUTPUT 36) are designed as threaded ports with G ¼ or ¼-18 NPT thread.

Customary fittings for metal tubing or plastic hoses can be used.

- ⇒ Read the maintenance instructions for upstream air reducing stations.
- ⇒ Blow through and clean all air pipes and hoses thoroughly before connecting them.

i NOTICE

Risk of property damage due to water entering the device.

- ⇒ Make sure that no water can enter at the end of an extension of the venting pipe (minimum cross-section of $28 \text{ mm}^2 = 6 \text{ mm}$ inside diameter) connected to either the vent elbow piece or directly to the G or NPT connection.

i/p converter mounted on the positioner

Generally, the pneumatic connection of the i/p converter is established by connecting it to the pneumatic input of the positioner.

Type 3766-000 Positioner

For direct attachment to the Type 3766-000 Positioner (see Fig. 15), the converter is connected using the hollow screw with grommet (6) and threaded bushing (5). The second screw (7) is used to vent the converter over the positioner housing. Before attaching the connecting piece (8) to the positioner, remove the M20 screw plug and the connecting nipple (input signal).

Type 4765 and Type 3760 Positioners

Type 4765 and Type 3760 Positioners (see Fig. 16 and Fig. 17): The ⅛ NPT threaded connection of the connecting piece (9) needs to be fitted with a suitable cable gland and must be connected to the input connection (input signal 27) of the positioner using a pipe or hose.

- ⇒ Keep the connection as short and small as possible, e.g. 6x1 mm cross-section.

The second bore (G ¼) serves as vent and needs to be equipped with the vent plug (11) included in the accessories.

All positioners

- ⇒ Remove the connecting plate (1) with sealing element (1.1) from the bottom of the housing and replace it with the connecting plate included in the accessories (see Chapter 3.2).
- ⇒ Make sure that the sealing element is correctly inserted in the connecting plate.
The filter must be located in front of the restrictor of the connecting plate.
- ⇒ **Type 4765 and Type 3766:**
Plug on silicone hose (4, see Fig. 15 and Fig. 16).
- ⇒ **Type 3760:**
Place on cap (4, see Fig. 17).

Installation

⇒ For SUPPLY 8 and OUTPUT 36 of the positioner, see associated positioner documentation.

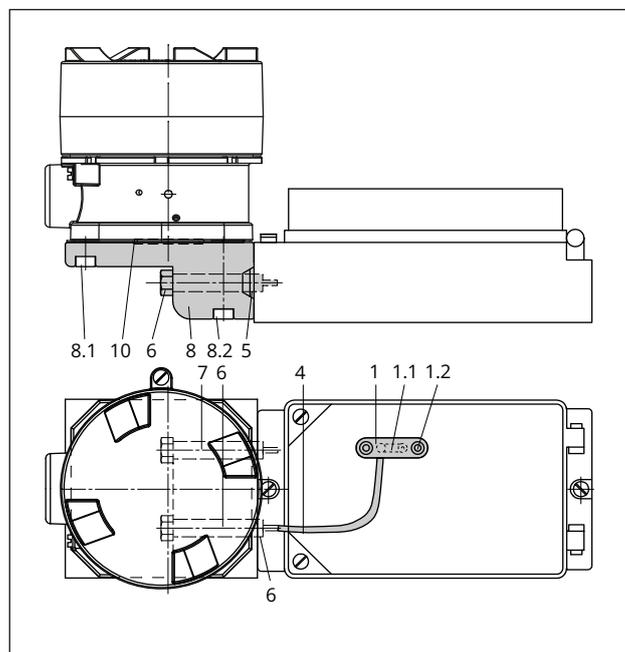


Fig. 15: Direct attachment to Type 3766 Positioner

- 1 Connecting plate
- 1.1 Sealing element
- 1.2 M3x16 screws
- 4 Hose
- 5 Threaded bushing
- 6 Hollow screw with grommet
- 7 Screw
- 8 Connecting piece
- 8.1 M4x12 screw
- 8.2 M4x40 screw
- 10 O-ring

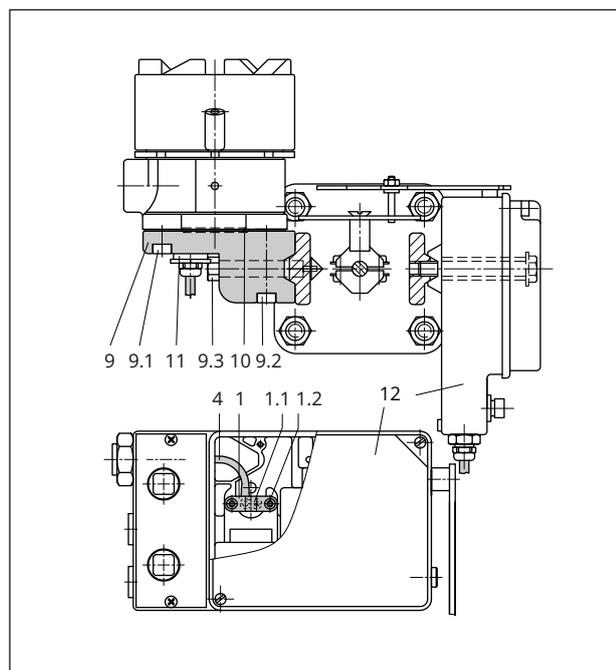


Fig. 16: NAMUR attachment to valve with Type 4765 Positioner

- 1 Connecting plate
- 1.1 Sealing element
- 1.2 M3x16 screws
- 4 Hose
- 9 Connecting piece
- 9.1 M4x12 screw
- 9.2 M4x40 screw
- 9. M4x55 screw
- 10 O-ring
- 11 Vent plug
- 12 Positioner

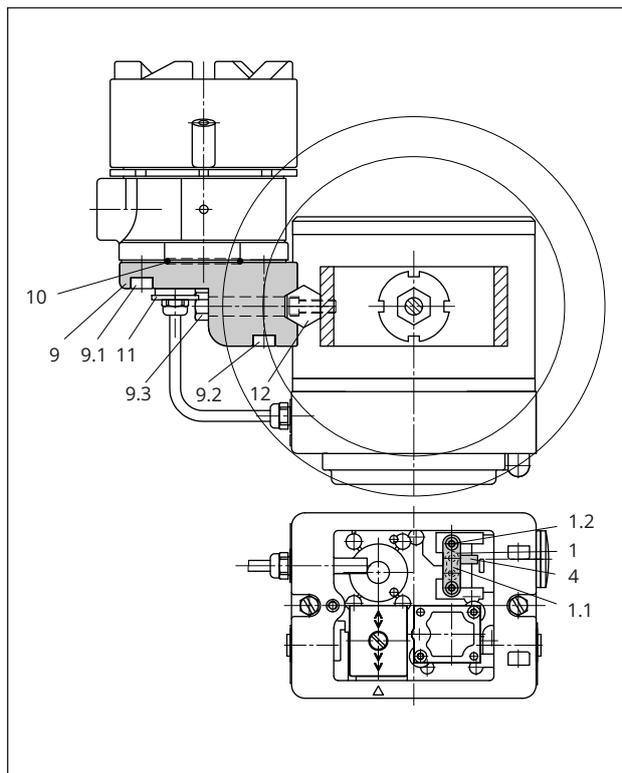


Fig. 17: Attachment to micro-flow valve with Type 3760 Positioner · Positioner open

- 1 Connecting plate
- 1.1 Sealing element
- 1.2 M3x16 screw
- 4 Cap
- 9 Connecting piece
- 9.1 M4x12 screw
- 9.2 M4x40 screw
- 9.3 M4x55 screw
- 10 O-ring
- 11 Vent plug
- 12 Hex bar (not required for mounting to a NAMUR rib)

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.

⚠ DANGER

Loss of Ex d protection due to opening the enclosure cover or damage to the cover's thread and/or the connecting thread.

- ⇒ The enclosure cover must be firmly closed during operation.
- ⇒ Put the i/p converter out of operation when its cover thread or connecting thread is damaged. Replace it with a new device.

Any adjustments to assign the travel of the control valve to the electric input signal must be made at the positioner separately from the converter module (see associated positioner documentation).

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. 18). 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).

In case of a mounting position that is not horizontal or when the pressure gauge/screw plug does not face upwards, zero and span can be corrected by approx. 10 % using the electronics.

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

The **ZERO** and **SPAN** potentiometers are accessible after opening the enclosure cover (see Fig. 18).

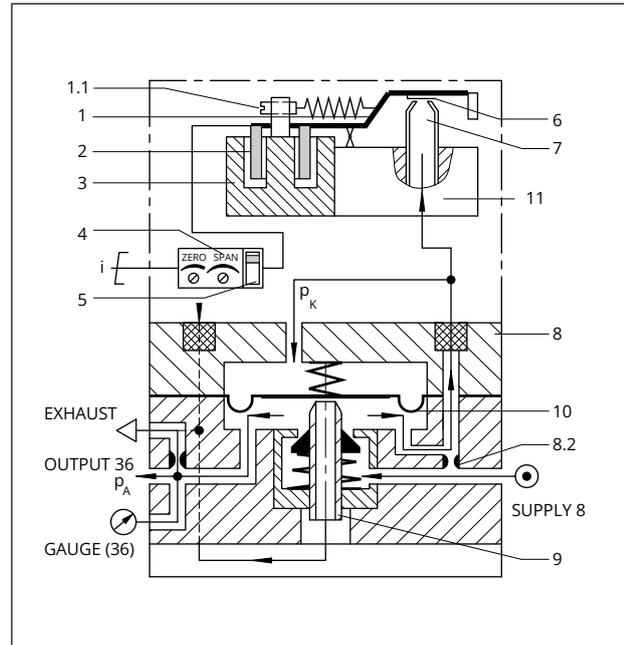


Fig. 18: Functional diagram

- 1 Balance beam
- 1.1 Zero point adjuster (Type 6112; only in version without electronics)
- 2 Plunger coil
- 3 Permanent magnet
- 4 Zero and span potentiometers (only in version with electronics)
- 5 Slide switch for switch-off electronics (only in version with electronics)
- 6 Flapper plate
- 7 Nozzle
- 8 Volume booster
- 8.2 Fixed restriction
- 9 Sleeve
- 10 Diaphragm
- p_A Output pressure
- p_K Backpressure (cascade pressure)
- 11 Type 6109/6112 i/p Module
- (●) Supply air

6.1.1 Checking zero

1. Unscrew the enclosure cover.
2. Connect a pressure gauge (minimum accuracy class 1) to the converter output.
3. Set the supply air to 0.4 bar above the upper output signal range value and apply it to the device (SUPPLY).
4. Deactivate the switch-off electronics at the slide switch (5).
5. Set the input signal to the lower range value of the input span 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.
6. If this is not the case, readjust the zero accordingly with the **ZERO** potentiometer.

6.1.2 Checking span

1. First check zero, if necessary (see Chapter 6.1.1).
2. 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.

3. If this value is not correct, readjust the span accordingly with the **SPAN** potentiometer.
4. 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)

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. 18).

- ⇒ Remove the front cover.
- ⇒ Insert a screwdriver through the hole in the cover of the Type 6112 i/p Module.
- ⇒ See Fig. 18.

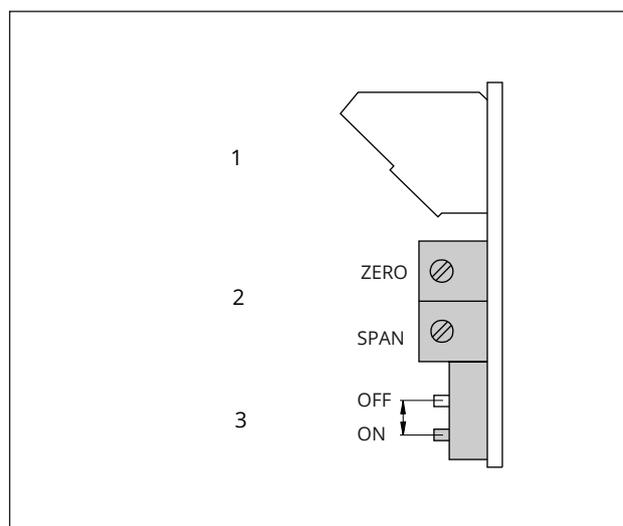


Fig. 19: Zero and span correction

- 1 Terminal
- 2 Potentiometer (zero and span)
- 3 Switch (switch-off electronics)

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

Read hazard statements, warnings and caution notes in Chapter 1.

8.1 Troubleshooting

⇒ See Table 3.

Table 3: *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 5.6).	
	Incorrect terminal assignment	⇒ Connect + and – terminals correctly (see Chapter 5.5).	NOTICE The i/p converters do not need any extra voltage. ⇒ Do not connect a voltage supply.
	Incorrect input signal	⇒ Connect correct signal.	⇒ See the nameplate (Chapter 2)
	Restrictor clogged up	⇒ Clean the restrictor (see Chapter 9.1).	
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 5.6 and 9.1).	
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).	

i 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.

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

Tip

Our after-sales service can support you in drawing up an inspection and test plan for your plant.

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.

9.1 Cleaning the restrictor

The restrictor (see Fig. 20) is located inside the enclosure. It can be accessed from the back of the device.

1. Unscrew the screw plug (Ø10).
2. Remove the restrictor.
3. To remove blockages, take the filter out of the restrictor and clean or replace it.

- ⇒ See Chapter 15.1 for spare parts.

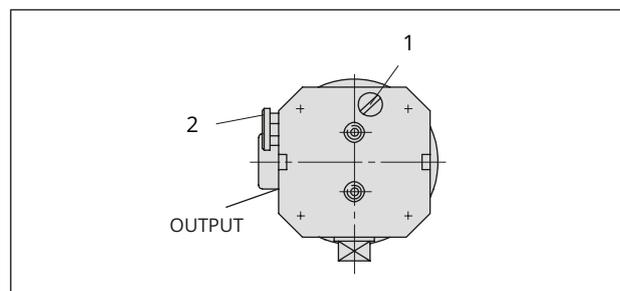


Fig. 20: Restrictor at the back

- 1 Restrictor
- 2 Exhaust (vent plug) IP54

9.2 Cleaning pneumatic connections

- ⇒ Unscrew plastic-rimmed filters. Clean or renew them (see Chapter 15.1).

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.

1. Check to ensure that the supply voltage is disconnected and the supply air line is depressurized.
2. Remove the pneumatic and electrical connections.
3. Remove the converter from the wall, pipe or control valve (depending on how it is mounted).

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 assigned SCIP number, which can be entered into the database on the European Chemicals Agency (ECHA) website to find out more information on the SVHC ► <https://www.echa.europa.eu/scip-database>.

i Note

SAMSON can provide you with a recycling passport on request. Simply e-mail us at aftersaleservice@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:

- List of explosion protection certificates
- EU declaration 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 > 6116



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 02 ATEX 2199

(4) Equipment: Model 6116-1. I/P Converter

(5) Manufacturer: SAMSON AG

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

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

(8) The Physikalisch-Technische Bundesanstalt, notified body number 0102 in accordance with 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 Requirement relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report: **PTB Ex 02-22374**

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

EN 50014: 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 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 the equipment.

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

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



Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 07 March 2003

(Signature)

(Seal)

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments 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 02 ATEX 2199

(15) **Description of Equipment**

The Model 6116-1.. I/P Converter serves for converting a load-independent current into a standard pressure signal in the 0.2 to 1 or 0.4 to 2 bar range respectively. It consists of an i/p module and a downstream pneumatic amplifier.

The Model 6116-1.. 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 U_i , I_i and P_i are not exceeded.

For air supply non-combustible media are used.

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

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

Version with I/P Module 6109-1..

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

Version with I/P Module 6112-2..

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

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

Schedule to the EX Type Examination Certificate PTB 02 ATEX 2199

Electrical data

Version with I/P Module 6109-1.

Signal Circuit
(terminals 11/12)

Type of protection. Intrinsic safety EEx ia IIC
only for connection to a certified
intrinsically safe circuit

Maximum values:

$$U_i = 28 \text{ V}$$

$$I_i = 85\text{mA or } 100 \text{ mA resp.}$$

$$P_i = 0,7 \text{ W}$$

$$C_i = \text{negligible, } L_i = \text{negligible}$$

Version with I/P Module 6112-2.

Signal circuit
(terminals 11/12)

Type of protection. Intrinsic safety EEx ia IIC
only for connection to a certified
intrinsically safe circuit

$$U_i = 28 \text{ V}$$

$$I_i = 100 \text{ mA or } 85 \text{ mA resp.}$$

$$P_i = 0,7 \text{ W}$$

$$C_i = \text{negligible, } L_i = \text{negligible}$$

or

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

$$I_i = 120 \text{ mA}$$

$$P_i = 0,7 \text{ W}$$

$$C_i = \text{negligible, } L_i = \text{negligible}$$

(16) Test report: PTB Ex-02-22374

(17) Special conditions for safe use

None

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

(18) Essential Health and Safety Requirements

In compliance with the standards specified above

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 7 March 2003

(Signature) (seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirektor

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

1. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2199

(Translation)

Equipment: i/p-converter, type 6116-1..

Marking:  II 2 G EEx ia IIC T6

Manufacturer: SAMSON AG Mess- und Regeltechnik

Address: Weismüllerstr. 3, 60314 Frankfurt, Germany

Description of supplements and modifications

The i/p-converter of type 6116-1.. is used for the conversion of a load-independent current into a normalized pressure signal ranging from 0.2 to 1 bar or 0.4 to 2 bar respectively. It consists of an i/p-module and a downstream pneumatic amplifier.

The i/p-converter of type 6116-1.. is a passive two-terminal network that may be connected to all intrinsically safe circuits provided that the permissible maximum values for U_i , I_i and P_i are not exceeded.

Non-flammable media are used as pneumatic auxiliary power.

The equipment is intended for the application inside and outside of hazardous areas.

For relationship between variant, temperature class, permissible ambient temperature ranges and maximum short-circuit current, reference is made to the following tables:

Variant with i/p-module 6109-1..

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

Variant with i/p-module 6112-2..

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

Electrical data

Variant with i/p-module 6109-1..

Signal circuit type of protection Intrinsic Safety Ex ia IIC
 (terminals 11/12) only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 28 \text{ V}$
 $I_i = 85 \text{ mA}$ or 100 mA
 $P_i = 0.7 \text{ W}$
 C_i negligibly low
 L_i negligibly low

Variant with i/p-module 6112-2..

Signal circuit type of protection Intrinsic Safety Ex ia IIC
 (terminals 11/12) only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 28 \text{ V}$
 $I_i = 85 \text{ mA}$ or 100 mA
 $P_i = 0.7 \text{ W}$
 C_i negligibly low
 L_i negligibly low

or

$U_i = 25 \text{ V}$
 $I_i = 120 \text{ mA}$
 $P_i = 0.7 \text{ W}$
 C_i negligibly low
 L_i negligibly low

The future marking reads:

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

Applied standards

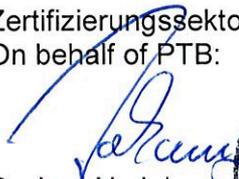
EN 60079-0:2009

EN 60079-11:2012

Test report: PTB Ex 14-23187

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, March 3, 2014


Dr.-Ing. U. Johannsmeyer
Direktor und Professor





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 98 ATEX 1024 X

(4) Equipment: Model 6116-2 i/p-Converter

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3
D-60314 Frankfurt am Main

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

(8) The Physikalisch-Technische Bundesanstalt, notified body number 0102 in accordance with Article 9 of the Council Directive 94/9/Ex of 23 March 94, 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 given in Annex II to the Directive.

The examination and test results are recorded in confidential report: No. **PTB Ex 98-17013**.

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

EN 50014:1997

EN 50018:1994

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

(11) 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 the equipment.

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

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



Zertifizierungsstelle Explosionsschutz

Braunschweig, 30.04.1998

By order

(Signature)

(Seal)

Dr.-Ing. U. Klausmeyer
Oberregierungsrat

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13)

S c h e d u l e

(14) **EC TYPE EXAMINATION CERTIFICATE No. PTB 98 ATEX 1024 X**

(15) **Description of Equipment**

The Model 6116 i/p- Converter serves for converting a current into a pressure signal in the 0.2 to 1 bar range. It consists of an i/p module followed by an amplifier. The pneumatic output signal is directly proportional to the input signal. The media used for the pneumatic system are non-combustible gases and vapours, whereas oxygen and/or gases enriched with oxygen shall not be used.

Technical data

IN 4 ... 20 mA
UN 1 ... 10 V

(16) **Test report**

PTB Ex 98-17013 comprising description (9 sheets), drawings (6 sheets) and test record (10 sheets).

(17) **Special conditions**

1. The Model 6116 i/p Converter shall be connected by suitable cable and conduit entries complying with the requirements specified in EN 50018 clauses 13.1 and 13.2 and for which a separate test certificate has been issued.
2. Cable entries (Pg glands) and plugs of simple construction shall not be used. When the i/p converter is connected by means of a conduit entry certified for this purpose, the associated sealing device shall be provided immediately at the enclosure.
3. Apertures not used shall be closed in compliance with EN 50018 clauses 11.9.

These notes shall be added to each apparatus in appropriate form.

Ambient temperature

The maximum ambient temperature of the Model 6116 i/p Converter is +60 °C.

Routine test

The routine tests specified in EN 50018 clauses 16.1 are not required according to clause 16.2 because the prescribed type test has been made at a pressure of four times the reference pressure.

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

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

Not applicable.

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 30.04.1998

(Signature)

(Seal)

Dr.-Ing. U. Klausmeyer
Oberregierungsrat

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

T R A N S L A T I O N
A D D E N D U M N o.1

in compliance with the Directive 94/9/Ec Annex III Clause 6
to the EC Type Examination Certificate PTB No. 98 ATEX 1024 X

Equipment: Model 6116-2 i/p-Converter

Marking:  II G EEx d IIC T6

Manufacturer: SAMSON AG Mess- und Regeltechnik

Address: Weismüllerstr. 3
D-60314 Frankfurt, Germany

Description of the additions and modifications

1. The range of use of the equipment is extended to a lowest ambient temperature of -45 °C .
2. The mounting and operating instructions for the equipment are supplemented by the clauses specified under Section 4 of the examination documents.

Test Report: PTB Ex 01-11313

Zertifizierungsstelle Explosionsschutz
(Signature) (Seal)

Braunschweig, 08 January 2002

#

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Page 1/1

The results laid down in this test report refer exclusively to the test object and the technical documentation submitted. Test reports without signature and seal are invalid. This test report may be reproduced unaltered only. Extracts or amendments shall require the prior approval of the Physikalisch-Technische Bundesanstalt.

Translation

(1) EC-Type Examination Certificate

(2) Equipment and protective systems intended for use
in potentially explosive atmospheres - Directive 94/9/EC

(3) No. of EC-Type Examination Certificate: **BVS 14 ATEX E 104 X**

(4) Equipment: **i/p - Converter type 6116-2*******

(5) Manufacturer: **SAMSON AG**

(6) Address: **Weismüllerstraße 3, 60314 Frankfurt am Main, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council 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, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 14.2144 EG.

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

EN 60079-0:2012 General requirements
EN 60079-1:2007 Flameproof enclosure "d"

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

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

 **II 2G Ex d IIC T* Gb**

* see parameters for details

DEKRA EXAM GmbH
Bochum, dated 2014-06-27

Signed: Simanski

Certification body

Signed: Dr. Wittler

Special services unit



(13) Appendix to

(14) **EC-Type Examination Certificate
BVS 14 ATEX E 104 X**

(15) 15.1 Subject and type

i/p - Converter type 6116-2*¹⁾*²⁾*³⁾*⁴⁾*⁵⁾*⁶⁾*⁷⁾*⁸⁾

- 1): i/p-Module
- 2): Input signal (electrical)
- 3): Output (pneumatic)
- 4): Operating direction
- 5): Connection thread
- 6): Pneumatic connection
- 7): Ingress of protection
- 8): Manometer

15.2 Description

The i/p-converter type 6116-2***** is designed to convert a current input signal in a pneumatic pressure output signal. The flameproof enclosure is made of an aluminium alloy, it is fitted with two stainless steel sintered flame arresters for comparative connection purposes.

The media is used for the pneumatic system are non-combustible gases and vapours. Gases enriched with oxygen shall not be used.

15.3 Parameters

Electric parameters

Nominal voltage	1...10	V
Nominal current	4...20	mA
Max. power dissipation	1.5	W

Pneumatic parameters

P _{max} Inlet	6	bar
P _{max} Outlet	5.6	bar

Thermal parameters

Ambient temperature / Temperature class	-45 °C ≤ T _a ≤ 50 °C	T6
	-45 °C ≤ T _a ≤ 65 °C	T5
	-45 °C ≤ T _a ≤ 80 °C	T4

(16) Test and Assessment Report

BVS PP 14.2144 EG as of 2014-06-27

(17) Special conditions for safe use

For ambient temperatures of 80 °C, cable glands and connecting cables have to be used that are of a permitted service temperature of T_a +3 K minimum. Nevertheless, those cable glands and connecting cables also need to be suitable for the lower temperatures.



We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 2014-06-27
BVS-Sit/Mu A 20140043

Certification body

Special services unit

Installation Manual for apparatus certified by CSA for use in hazardous locations.

Electrical rating of intrinsically safe apparatus and apparatus for installation in hazardous locations.

Table 1: Maximum values

	U_i or V_{max}	I_i or I_{max}	P_i or P_{max}	C_i	L_i
Signal circuit	28V	115mA	0,7W	0 nF	0 μH

$$U_0 \text{ or } V_{0C} \leq U_i \text{ or } V_{max} / I_0 \text{ or } I_{0C} \leq I_i \text{ or } I_{max} / P_0 \leq P_i \text{ or } P_{max}; C_a \geq C_i \text{ and } L_a \geq L_i$$

Table 2: CSA - certified barrier parameters of solenoid valve circuit

Barrier	Supply barrier		Evaluation barrier	
	V_{0C}	R_{min}	V_{0C}	R_{min}
Signal circuit	≤ 28V	≥ 280Ω	28V	#

Table 3: The correlation between temperature classification and permissible ambient temperature ranges is shown in the table below:

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

Intrinsically safe if installed as specified in manufacturer’s installation manual EB 6116 EN.

CSA- certified for hazardous locations

Ex ia IIC T6; Class I, Zone 0

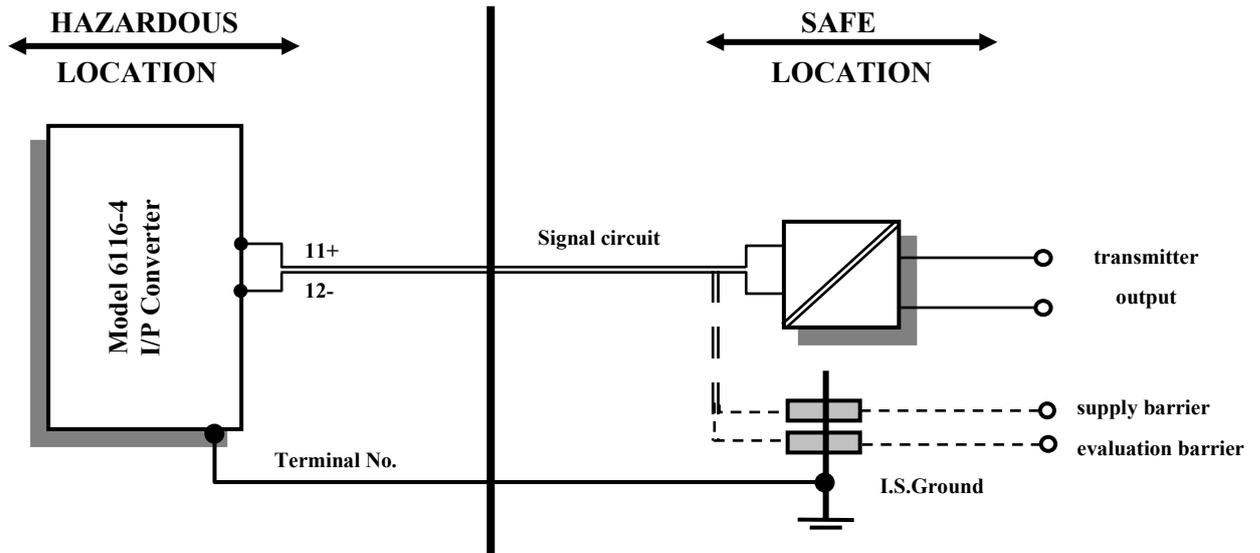
Type 4 Enclosure

Class I; Groups A, B, C, D

Class II; Groups E, F + G; Class III

Notes:

- 1.) The apparatus may be installed in intrinsically safe circuit only when used in conjunction with the CSA certified apparatus. For maximum values of **U_i or V_{max}; I_i or I_{max}; P_i or P_{max} ; C_i and L_i** of the various apparatus see Table 1.
- 2.) The apparatus may be installed in intrinsically safe circuit only when used in conjunction with the CSA certified intrinsically safe barrier. For barrier selection see Table 2.
- 3.) Installation shall be in accordance with the Canadian Electrical Code Part. 1.
- 4.) Use only supply wires suitable for 5°C above surrounding temperature.



Version: Model 6116-4 I/P Converter.

Supply and evaluation barrier CSA certified.

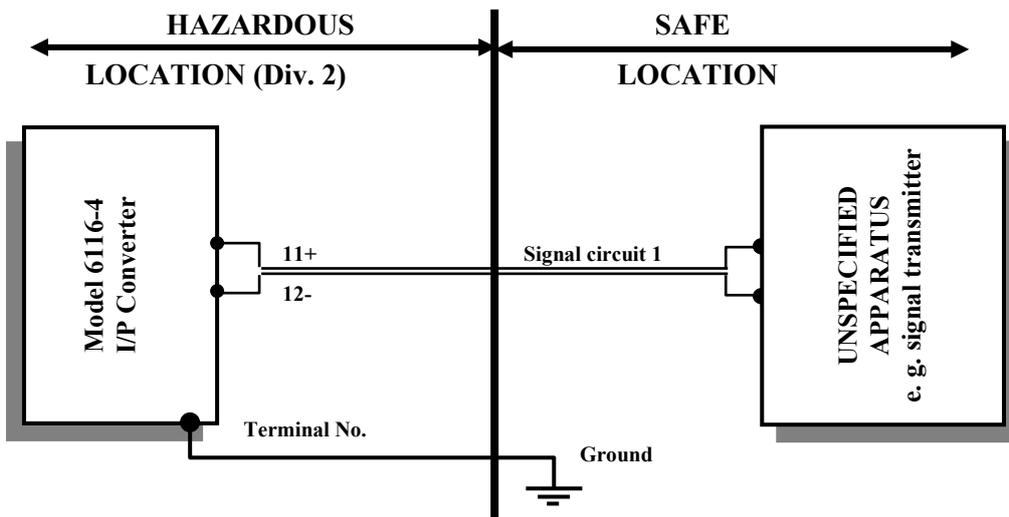
For the permissible maximum values for the intrinsically safe circuit see Table 1
 For the permissible barrier parameters for the circuit see Table 2

Cable entry M 20 x 1.5 or metal conduit according to drawing No. 1050 – 0539 T
 or 1050 – 0540 T

CSA- certified for hazardous locations

Class I; Div. 2, Groups A, B, C, D
 Class II; Div. 2, Groups E, F + G, Class III

Type 4 Enclosure



Notes:

- 1.) For the maximum values for the circuit see Table 1 and 2.
- 2.) Cable entry only rigid metal conduit according to drawing No. 1050-0539 T and 1050-0540 T

Installation Manual for apparatus approved by FM for use in hazardous locations.

Electrical rating of intrinsically safe apparatus and apparatus for installation in hazardous locations.

Table 1: Maximum values

	U_i or V_{max}	I_i or I_{max}	P_i or P_{max}	C_i	L_i
Signal circuit	28V	115mA	0,7W	0nF	0 μH

Notes: $U_0 \text{ or } V_{0C} \text{ or } V_t \leq U_i \text{ or } V_{max} / I_0 \text{ or } I_{0C} \text{ or } I_t \leq I_i \text{ or } I_{max}$

$P_0 \text{ or } P_{max} \leq P_i \text{ or } P_{max}$

Table 2: FM - approved barrier parameters of solenoid valve circuit

Barrier	Supply barrier			Evaluation barrier		
	V_{0C}	R_{min}	I_{0C}	V_{0C}	R_{min}	I_{0C}
Signal circuit	≤ 28V	≥ 280Ω	≤ 115mA	28V	#	0mA

Table 3: The correlation between temperature classification and permissible ambient temperature ranges is shown in the table below:

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

Intrinsically safe if installed as specified in manufacturer’s installation manual EB 6116 EN.

FM- approved for hazardous locations

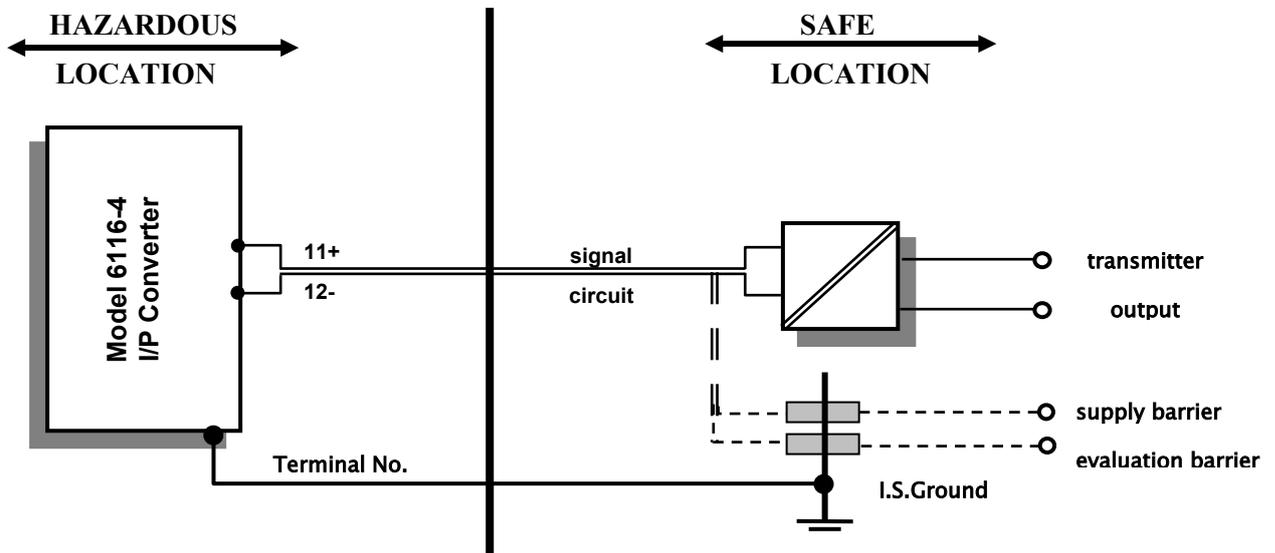
Class I, Zone 0, A Ex ia IIC T6

NEMA 4X

Class I, II, III, Division 1, Groups A, B, C, D E, F + G;

Notes:

- 1.) The apparatus may be installed in intrinsically safe circuit only when used in conjunction with the FM - approved apparatus. For maximum values of U_i or V_{max} ; I_i or I_{max} ; P_i or P_{max} ; C_i and L_i of the various apparatus see Table 1.
- 2.) The apparatus may be installed in intrinsically safe circuit only when used in conjunction with the FM -approved intrinsically safe barrier. For barrier selection see Table 2.
- 3.) Installation shall be in accordance with the National Electrical Code ANSI/NFPA 70 and ANSI/ISA RP 12.06.01
- 4.) Use only supply wires suitable for 5°C above surrounding temperature.



Version: Model 6116-4 I/P Converter.

Supply and evaluation barrier FM/CSA- approved.

For the permissible maximum values for the intrinsically safe circuit see Table 1

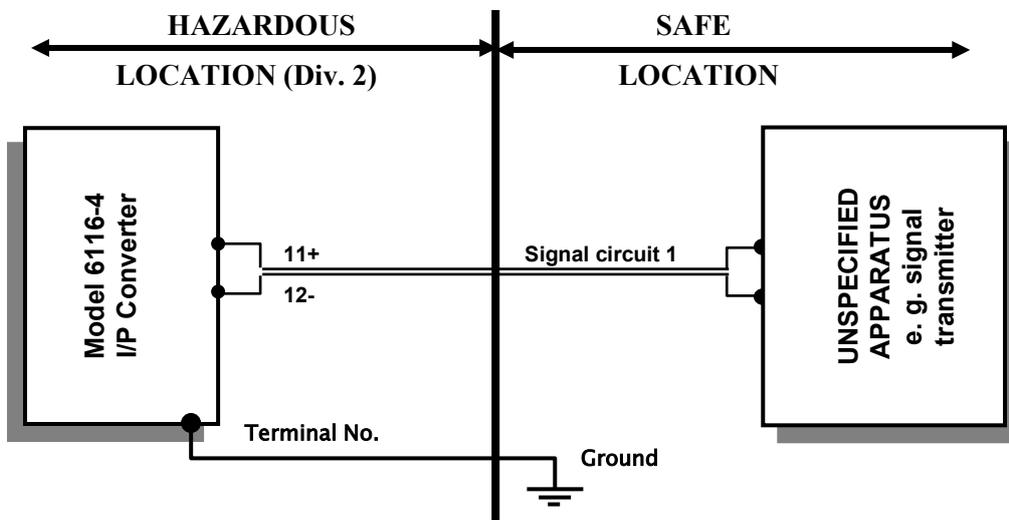
For the permissible barrier parameters for the circuit see Table 2

Cable entry M 20 x 1.5 or metal conduit according to drawing No. 1050 – 0539 T or 1050 – 0540 T

FM- approved for hazardous locations

Class I, Division 2, Groups A, B, C, D
 Class II Division 2, Groups F + G, Class III

NEMA 4X



Notes:

- 1.) For the maximum values for the circuit see Table 1 and 2.
- 2.) Cable entry only rigid metal conduit according to drawing No. 1050-0539 T and 1050-0540 T
- 3.) The installation shall be in accordance with the National Electrical Code ANSI/NFPA 70



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 6116

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.

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

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



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 6116-1...

entsprechend der EU-Baumusterprüfbescheinigung PTB 02 ATEX 2199 ausgestellt von der/
according to the EU Type Examination PTB 02 ATEX 2199 issued by/
établi selon le certificat CE d'essais sur échantillons PTB 02 ATEX 2199 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.

Hanno Zager
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Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklungsorganisation/Development Organization



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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 6116-2...

entsprechend der EU-Baumusterprüfbescheinigung BVS 14 ATEX E 104 X ausgestellt von der/
according to the EU Type Examination BVS 14 ATEX E 104 X issued by/
établi selon le certificat CE d'essais sur échantillons BVS 14 ATEX E104 X émis par:

DEKRA EXAM GmbH
Dinnendahlstraße 9
D-44809 Bochum

Benannte Stelle/Notified Body/Organisme notifié 0158

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 60079-0:2012, EN 60079-1:2007
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

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

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

15 Appendix

15.1 Parts for retrofitting and accessories

Table 4: *Mounting accessories*

Spare parts/accessories	Order no.
Wall and pipe mounting	1400-6216
Mounting bracket (1.4301) for wall mounting	1400-7432
Mounting unit for Type 6116 in various versions	M6116
Mounting on Type 3766 ¹⁾	1400-6227
Mounting on Type 4765 ¹⁾	1400-6223
Mounting on Type 3760 ¹⁾	1400-6224
Mounting on cast yoke according to NAMUR ¹⁾	1400-6217
Mounting on rod-type yoke according to NAMUR ¹⁾	1400-6218
Male screw fitting G ¼ on hose with 4 mm inside diameter and 6 mm outside diameter, brass	8582-1452
Male screw fitting ¼ NPT on hose, 4 mm inside diameter and 6 mm outside diameter, brass	8582-1523
M20x1.5 cable gland, black polyamide (6 to 12 mm clamping range)	8808-1011
M20x1.5 cable gland, blue polyamide (6 to 12 mm clamping range)	8808-1012
M20x1.5 cable gland, nickel-plated brass (6 to 12 mm clamping range)	1890-4875
M20x1.5 cable gland, stainless steel 1.4305 (8 to 14.5 mm clamping range)	8808-0160
Cable gland ½ NPT, black polyamide (6 to 12 mm clamping range)	8808-0145
Cable gland ½ NPT, blue polyamide (6 to 12 mm clamping range)	8808-0146
Cable gland ½ NPT, nickel-plated brass (6 to 12 mm clamping range)	8808-0140
Vent plug G ¼, stainless steel 1.4305, IP66 (-45 to +80 °C)	1790-7253
Vent plug G ¼, stainless steel 1.4305, NEMA 4/Type 4 (-45 to +80 °C)	1790-9646
Filter	0550-0213
Restriction including filter	1390-0186

¹⁾ Only mounting part not mounted and without any required piping; M6116 includes mounting

Table 5: *Accessories for subsequent pressure gauge mounting*

Pressure gauge	Order no.
Pressure gauge: 0.2 to 1.2 bar pressure range	0080-0185
Pressure gauge: 0 to 6 bar pressure range	0080-0186
Pressure gauge: 0 to 10 bar pressure range	8520-0032
Pressure gauge: 0 to 0.6 MPa/0 to 6 kg/cm ² pressure range	0800-0204
For all pressure gauges: screw fitting	0250-1090

Table 6: Accessories for positioner attachment

Positioner	Mounting instructions	Order no.
Type 3766-00 (model index .02 and higher)	Direct attachment to the positioner according to Fig. 15 (for positioner with M20x1.5 electrical connection)	1400-6227
	For older positioner models with PG 13.5	1400-6222
Type 4765	NAMUR attachment to the yoke of a control valve according to Fig. 16	1400-6223
Type 3760	Attachment to the yoke of the Type 3510 Micro-flow Valve according to Fig. 17 or to the NAMUR rib	1400-6224

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.

► aftersaleservice@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



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