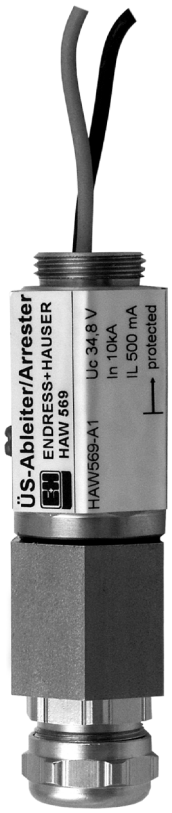
Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical information

HAW569/569Z

Surge arrester
Overvoltage protection limiting high voltages on ungrounded twin-core cables



Application
The HAW569 is a surge arrester for direct connection of universal field devices in process measurement and control.
The HAW569Z is suitable for use in Ex areas.

Your benefits

- Security against external power surges
- Overvoltage is surpressed using the housing, interference pulses do not reach the inside of the field housing
- Application in Ex areas (HAW569Z)
- High integrity
- Compact, two-part construction for secure cable continuity
- Simple installation – screw in between cable entry and field device
- Can be retrofitted
- Supports direct or indirect screen grounding
- Corrosion-resistant and watertight protective housing

TI103R/09/en
51006586

Endress+Hauser
People for Process Automation

Function and system design

Operating principle

Overvoltage protection of an ungrounded twin-core cable and symetric interfaces in field devices used in measurement and control instrumentation in accordance with NAMUR NE21, e.g. surges induced by remote lightning strikes or switch sequences.

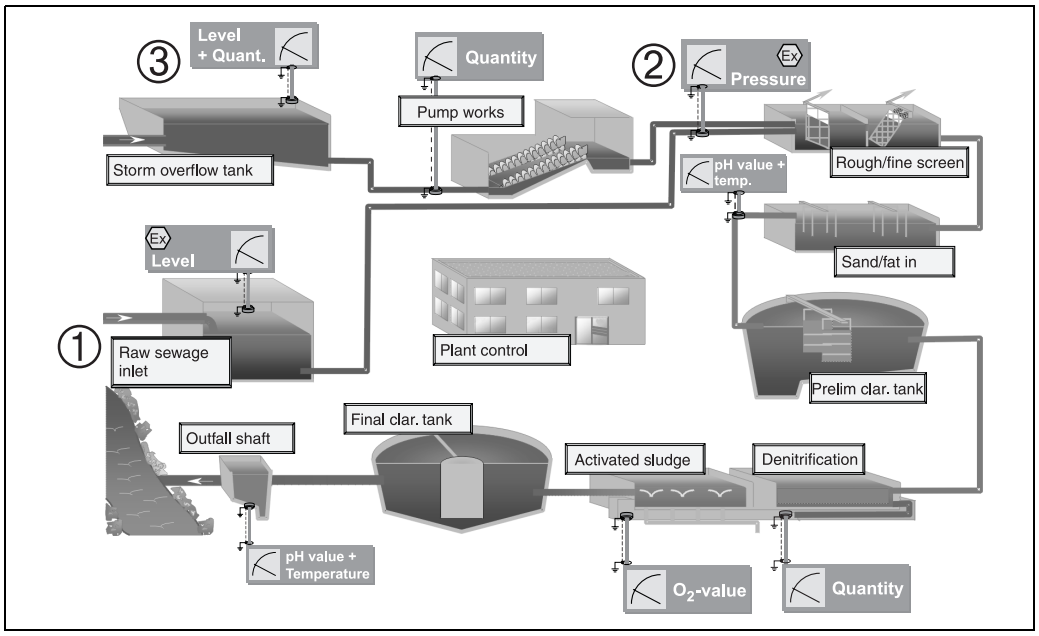
Operation of signal cable protection device
Low and matched disconnection impedance between the individual protection steps within the device guarantee high compatibility with the system to be protected.

Operating system

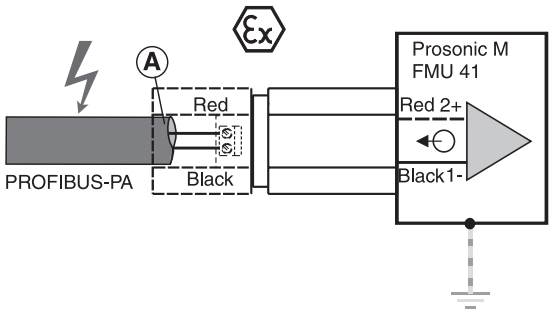
HAW569/569Z surge arrester
The HAW569/569Z device is used as a compact surge arrester for protection of signal cables and components:

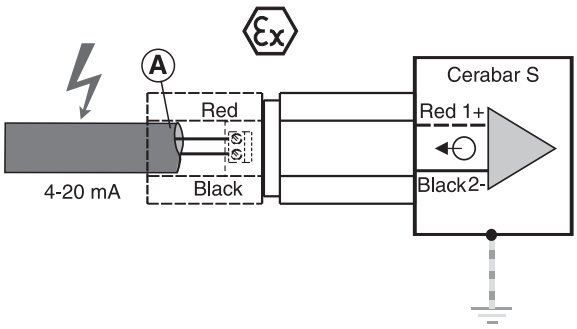
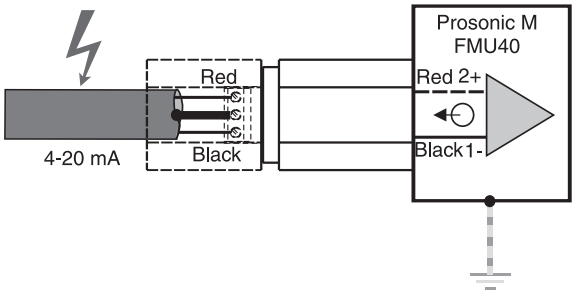
- HAW569 (0/4 to 20 mA, PROFIBUS-PA)
- HAW569Z, application in Ex area (0/4 to 20 mA, PROFIBUS-PA, Foundation Fieldbus)

Application area
Surge protection of various measurement instrumentation seen in the example of a wastewater treatment plant.



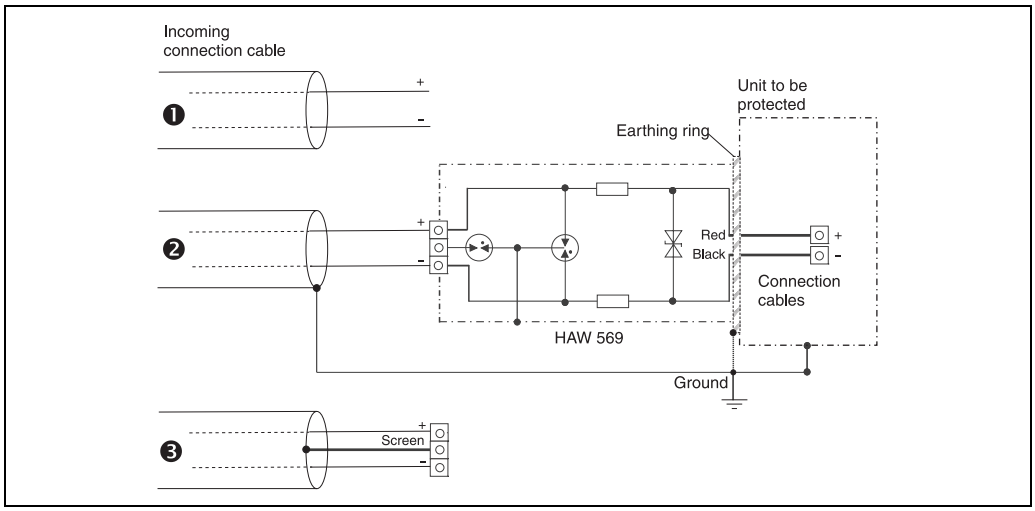
Measurement points on a water treatment plant

Measurement points	Measurement signal	Measurement point requirements	Connection diagram
Raw sewage inlet (Pos. ①) intrinsically safe Ex	Level measurement using E+H Prosonic M FMU41 device	1 HAW569Z for PROFIBUS PA signal connection	 *Pos. A: The cable screen must be directly connected to the housing using a suitable cable connector (see "Accessories").*

Measurement points	Measurement signal	Measurement point requirements	Connection diagram
Pipework (Pos. ②) Pump pressure monitor Intrinsically safe Ex	Pressure measurement using E+H Cerabar S pressure transmitter	1 HAW569Z for 0/4 to 20 mA remote signal	 *Pos. A: The cable screen must be directly connected to the housing using a suitable cable gland (see "Accessories").*
Storm overflow tank (Pos. ③)	Level measurement using E+H Prosonic M FMU40 ultrasonic transmitter	1 HAW569 for 0/4 to 20 mA remote signal	

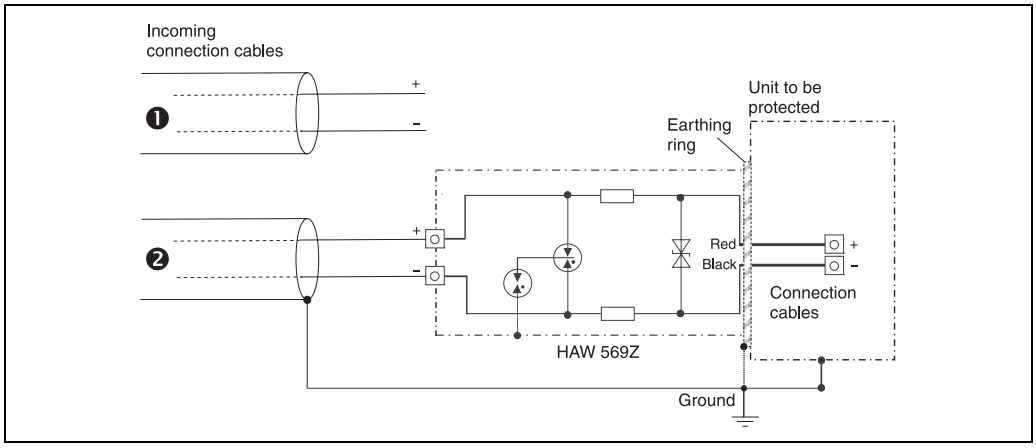
Electrical connection

Connection of the unit is as shown in the following diagrams. The ground connection is made by either direct fitting into a conductive and grounded field housing or by using a separate earthing ring to which the ground potential is to be connected.



Electrical connection of the HAW569 (in a non-Ex area)

The cables can, dependent on the screen grounding, be connected in different ways:
Pos. 1: Connection without grounded screen
Pos. 2: Direct grounded screen using an EMC cable gland (available as accessory)
Pos. 3: Indirectly grounded screen using a gas discharger



Electrical connection of the HAW569Z (in an Ex area)

The cables can, dependent on the screen grounding, be connected in different ways:
Pos. 1: Connection without grounded screen
Pos. 2: Direct grounded screen using an EMC screwed cable gland (available as accessory)

Note!
Direct grounded screen for the HAW569Z is not possible is an Ex area!

Electrical connection

	HAW569	HAW569Z
Power supply Operating voltage	24 V DC	
Maximum allowable operating voltage	34.8 V DC	30 V DC
Maximum permitted current consumption	500 mA	
max. current consumption I_N in the unit to be protected	500 mA	
Nominal discharge current i_{sn} (8/20) per line per cable pair Screen/PG	 5 kA 10 kA 20 kA	 5 kA 10 kA -
Voltage protection level at i_{sn} Line/line Line/PG Screen/PG	 ≤ 65 V ≤ 650 V ≤ 650 V	 ≤ 55 V ≤ 1100 V -
Response times Line/line Line/PG Screen/PG	 ≤ 1 ns ≤ 100 ns ≤ 100 ns	 ≤ 1 ns ≤ 100 ns -
Limit frequency	14.0 MHz	7.0 MHz
Impedence length/line	2.2 Ω	1.8 Ω
Capacitance Line/line Line/PG Screen/PG	 ≤ 400 pF ≤ 20 pF ≤ 15 pF	 ≤ 850 pF ≤ 15 pF -

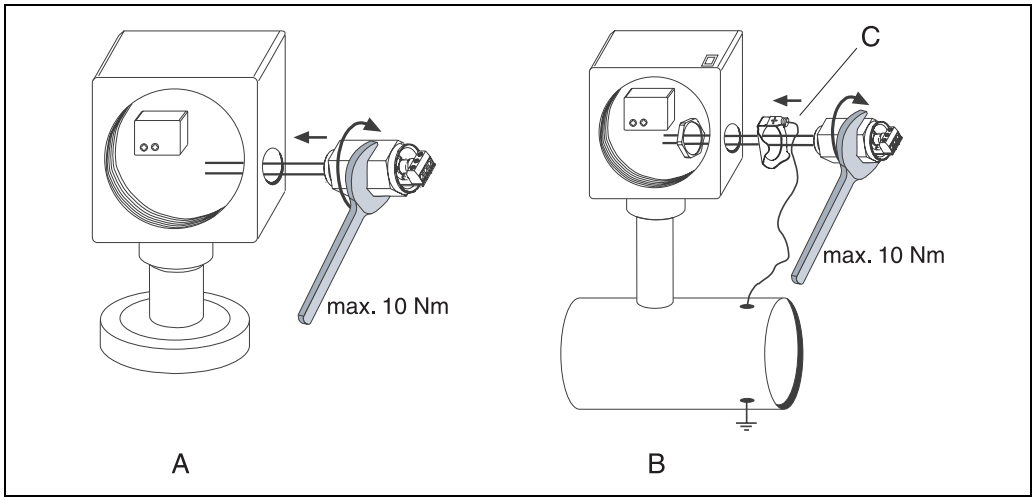
Potential equalisation

The field unit to be protected and the surge arrester must be connected to the same potential.

Operating condition

Installation instructions

Mounting location



Pos. A: Installation into a field housing (metal housing) without earthing ring - grounded using the metal housing.

Pos. B: Installation into a field housing (non metal housing) using an earthing ring

Pos. C: Earthing ring (available as accessory)

Mounting position

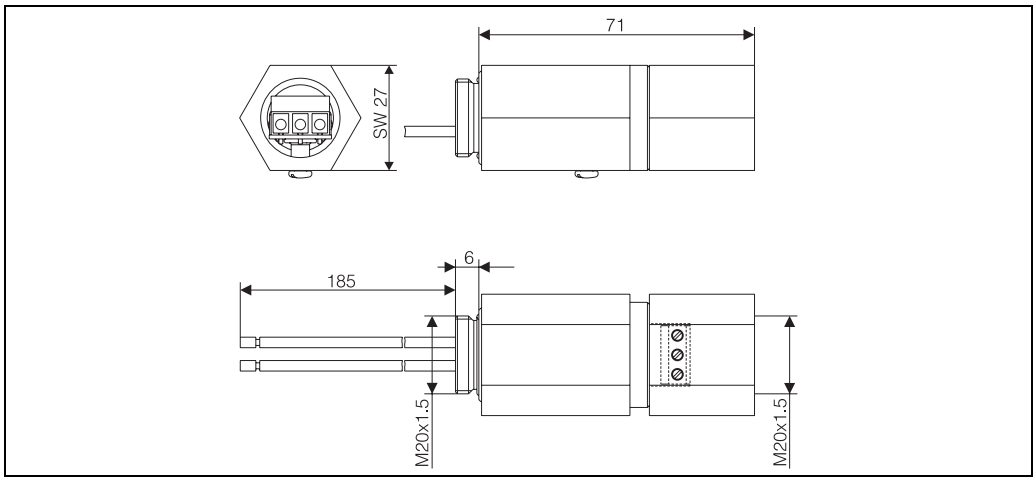
No limitation

Environment

Ambient temperature	-40 to 80 °C
Storage temperature	See "Ambient temperature"
Degree of protection	After correct installation and electrical connection: IP 67
Electromagnetic compatibility (EMC)	Tested to category according to IEC 61643-21:2000 A2, B2, C2, C3, D1

Mechanical construction

Design, dimensions



Dimensions in mm

Weight

175 g

Material

Housing: Stainless steel 1.4305

Process connection

Input side device housing: M20x1.5 internal thread	Output side device housing: M20x1.5 external thread

Terminals

Input: ■ Up to1.5 mm^2 fine strand Up to 2.5 mm^2 single line	Output connecting cable: ■ 1.5 mm^2 fine strand, length 200 mm

Human interface

The device has no display or operating elements. In a defect condition both signal cables are in a short-circuit and the device must be changed.

Certificates and approvals

CE approval

The measurement system fulfils the legal requirements of the EU guidelines. Endress+Hauser acknowledges a successful test of the device by applying the CE mark.

Ex approval

Details regarding the availability of the Ex versions (ATEX, FM, CSA etc,) can be obtained from your local E+H sales organisation. All relevant data for Ex protection can be found in separate Ex documentation, available on request.

Other standards and guidelines

- IEC 60529:
  Housing ingress protection (IP code)
- IEC 61010:
  safety requirements for electrical measurement, control and laboratory instrumentation
- EN 61326 (IEC 1326):
  Electromagnetic compatibility (EMC requirements)

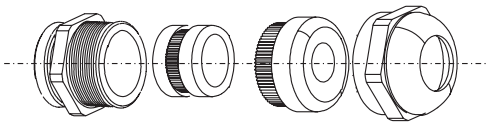
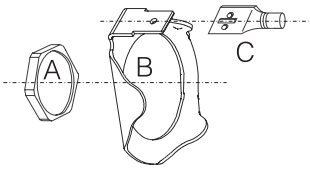
Ordering information

Product structure

HAW569	**Surge arrester HAW569** For protection of the interfaces from devices in instrumentation. Watertight and corrossion-resistant tubula housing for screwing into field devices.					
	Certificates, approvals					
	A	Version for non-Ex areas				
	B	ATEX II(1)GD, (EEx ia) IIC				
		Model				
		1	IP67/NEMA4x field housing, M20 internal/external, V2A, hexagonal AF27x71 mm			
			Application area			
			1	0/4 to 20 mA, PFM, PROFIBUS PA, Foundation Fieldbus, 2 assymetrical single cores		
				Type		
				A	Standard	
HAW569-		**1**	**1**	**A**	⇐ **Order code (complete)**	

Note!
Order code for HAW569Z: HAW569-B11A

Accessories

Screwed cable gland set 2 x M20x1.5 IP68 M20 EMC screwed cable gland for direct/indirect shield earthing, cable outside diameter 6.5 to 13 mm	**Order number: 51006419** 
Earthing ring-set for the HAW569 M20 when using a plastic sensor housing: Pos. A = Lock nut Pos. B = Earthing ring Pos. C = Flat plug	**Order number: 51006420** 

Further documentation

- ❑Short Operating Instructions "HAW569/569Z surge arrester" (KA161R/09/a6)
- ❑Ex additional documentation: ATEX, FM, CSA, etc.
- ❑Technical Information 'Surge arresters HAW561/561K, HAW560/560Z, HAW562/562Z, HAW565' (TI093R/09/en)

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