Overview

SITRANS AS100 is an acoustic sensor used for solids flow detection.

Benefits

- Non-invasive
- Screw in, bolt on, weld, or bond in place
- Analog output
- High and low sensitivity range of operation

Application

SITRANS AS100 detects changes in high frequency sound waves from equipment and materials in motion. It detects and reacts instantly to changes in solids flow to warn of blockages, product absence, or equipment failure such as burst filter bags. This allows an operator to take early preventative action and avoid costly damage.

Common applications include pellets, powders and most bulk solids in pipes, chutes, vibratory feeders, pneumatic conveyors or aerated gravity flow systems.

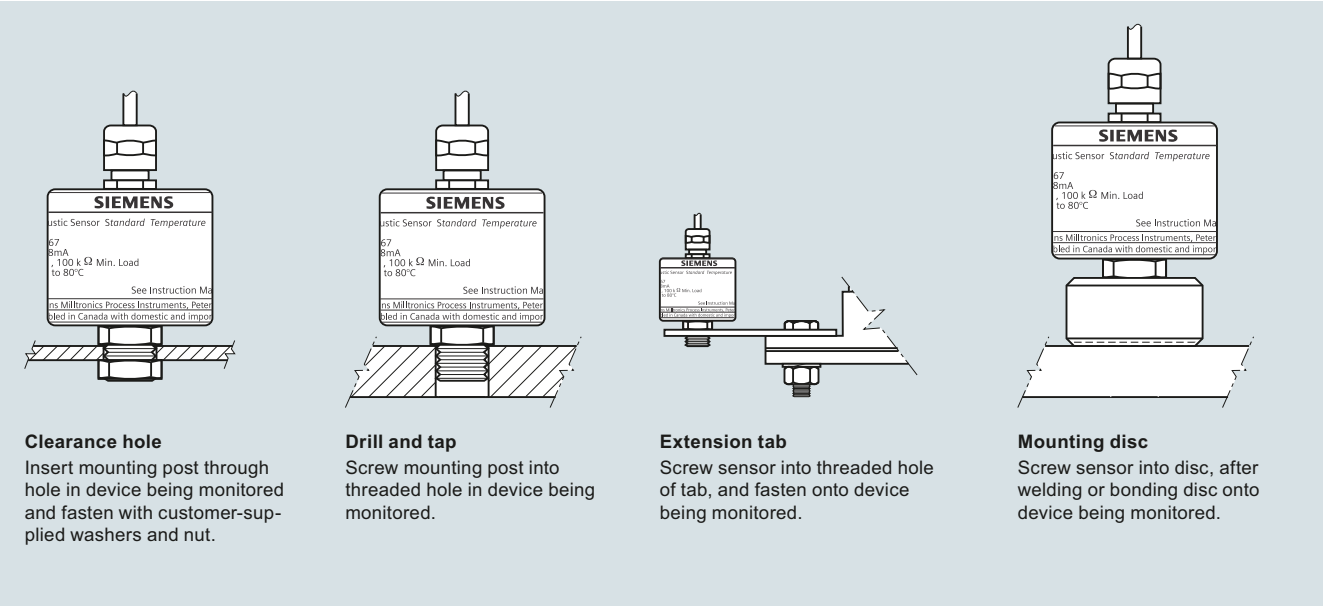
Operating with a SITRANS CU02 control unit, the system detects conditions of high flow, low flow or no flow. It can be added to a control loop via a 4 to 20 mA output.

Two relays are fully programmable and independent of each other and can be used to operate an alarm or control device.

With no moving parts and a type 304 or 303 stainless steel enclosure sealed against dust and moisture, this non-invasive unit requires little or no maintenance. With a dual operating range, the sensor offers an exceptionally wide range of application capabilities.

- Key applications: pipes, chutes, vibratory feeders, aerated gravity flow systems, burst filter bag detection

Design



Clearance hole
Insert mounting post through hole in device being monitored and fasten with customer-supplied washers and nut.

Drill and tap
Screw mounting post into threaded hole in device being monitored.

Extension tab
Screw sensor into threaded hole of tab, and fasten onto device being monitored.

Mounting disc
Screw sensor into disc, after welding or bonding disc onto device being monitored.

SITRANS AS100 mounting

SITRANS AS100 Acoustic sensor

Technical specifications

Mode of Operation	
Operating principle	Acoustic sensing of high frequency emissions caused by impact or friction
Typical application	• Detects burst filter bags in dust collection systems • Detects material being conveyed in pneumatic conveyor lines • Route confirmation in chute work
Model	
Standard	Standard operating temperature range
Extended	Extended operating temperature range
Operation	
Relative sensitivity	0.5 %/°C of reading, average over the operating range
Outputs	Analog, 0.08 ... 10 V DC nominal, 100 kΩ minimum load impedance
Rated operating conditions	
Amb. temperature for enclosure	
• Standard	-20 ... +80 °C (-4 ... +176 °F)
• Extended	• -40 ... +125 °C (-40 ... +257 °F) (CE only) • -30 ... +120 °C (-22 ... +248 °F) option
Storage temperature	
• Standard	-20 ... +80 °C (-4 ... +176 °F)
• Extended	• -40 ... +125 °C (-40 ... +257 °F) (CE only) • -30 ... +120 °C (-22 ... +248 °F) option
Design	
Weight	0.4 kg (1 lb)
Enclosure	Enclosure: 304 (1.4301) stainless steel [303 stainless steel (1.4305) on Class II version, aluminum 231 on 2GD version]
Degree of protection	IP68 (waterproof)
Cable	
• Standard	4 m (13 ft) cable, PVC jacketed, 3 twisted pairs, 24 AWG (0.25 mm^2), shielded
• Extended	4 m (13 ft) cable, thermoplastic elastomer jacketed, 6 conductor, 24 AWG (0.25 mm^2) conductor, shielded
Power supply	20 ... 30 V DC, 18 mA (typical)
Certificates and approvals	CE, RCM, EAC, KCC CSA/FM Class II, Div. 1, Group E, F, and G (optional), ATEX II 2GD (optional), ATEX II 3D (optional), EAC Ex

Selection and ordering data

	Article No.
SITRANS AS100 Acoustic sensor ↗	**7MH7560-**
Non-invasive, for detection of solids flow.	■ ■ ■ **0** ■
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Sensor	
Standard temperature range [-20 ... +80 °C (-4 ... +176 °F)][1]	**1**
Extended temperature range [-40 ... +125 °C (-40 ... +257 °F)][2]	**3**
Extended temperature range [-30 ... +120 °C (-22 ... +248 °F)][3]	**4**
Cable Length	
4 m (13.12 ft)	**A**
Sensor Mounting	
None	**A**
Mounting disk	**B**
Mounting tab	**C**
Approvals	
CE, RCM, EAC, KCC	**1**
CSA/FM Class II, Div. 1, Group E, F, and G (includes ½" NPT female fitting)	**3**
CSA Class II, Div. 1, Group E, F, and G (includes ½" NPT female fitting)	**4**
CE, RCM, FM/CSA Class II, Div. 1, Group E, F and G, ATEX II 3D (includes M20 female fitting), EAC Ex	**5**
ATEX II 2GD, c/w cable gland, EAC Ex[4]	**6**

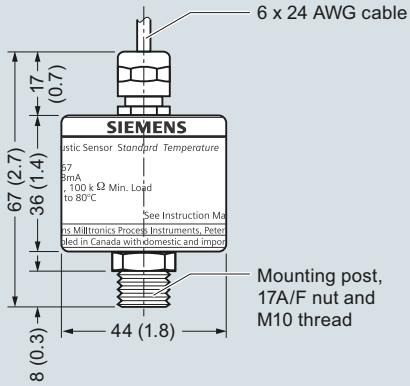
[1] Available with approval options 1, 3, 5, and 6 only.
[2] Available with approval option 1 only.
[3] Available with approval option 4 only.
[4] Available with sensor option 1 only and sensor mounting option A only.

Selection and ordering data

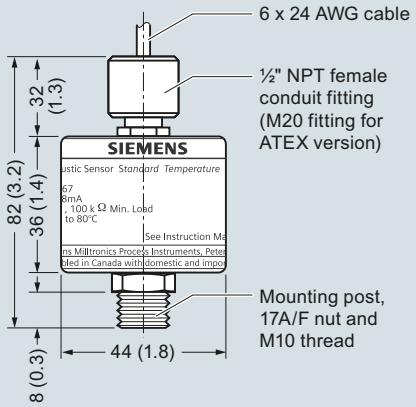
	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Manufacturer's test certificate: According to EN 10204-2.2	**C11**
Acrylic coated, stainless steel tag [12 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 16 characters), specify in plain text	**Y17**
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Spare Parts	Article No.
Mounting tab	**7MH7723-1AA**
Mounting disk	**7MH7723-1AB**
½" NPT adapter kit for standard temperature range sensor, not Class II approved	**7MH7723-1BW**
M20 adapter kit for standard temperature range sensor, not Class II or ATEX approved	**7MH7723-1BV**
½" NPT adapter kit for extended temperature range sensor, not Class II approved Note: Adapter kits are not CSA Class II approved	**7MH7723-1BX**

Dimensional drawings

SITRANS AS100
(ST and ET versions)



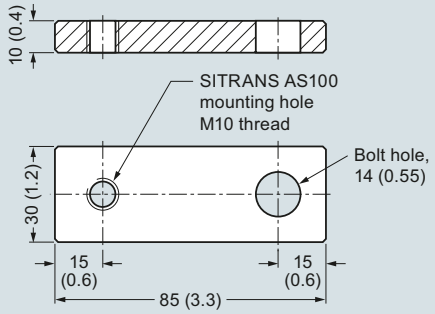
SITRANS AS100
(class II rated ST and ET versions)



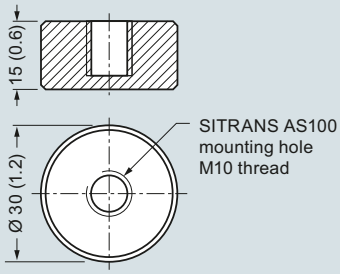
SITRANS AS100, dimensions in mm (inch)

Accessories

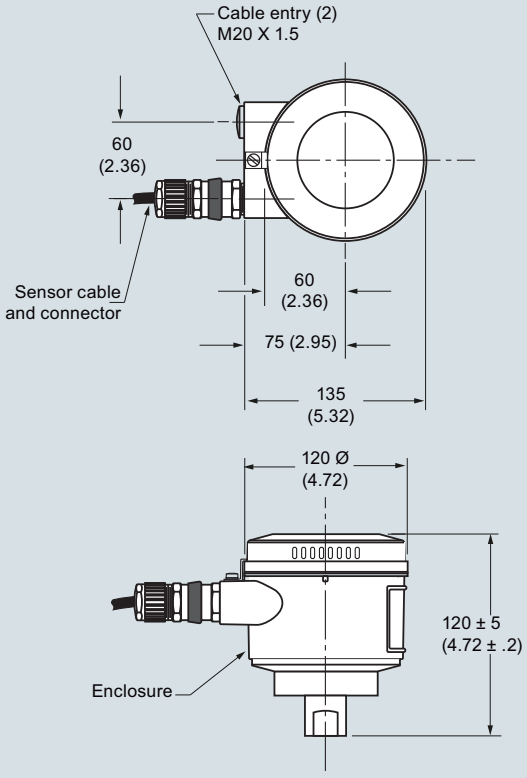
Extension tab - bolt on
(304 stainless steel)



Mounting disc - bonded or welded
(304 stainless steel)



SITRANS AS100 accessories, dimensions in mm (inch)

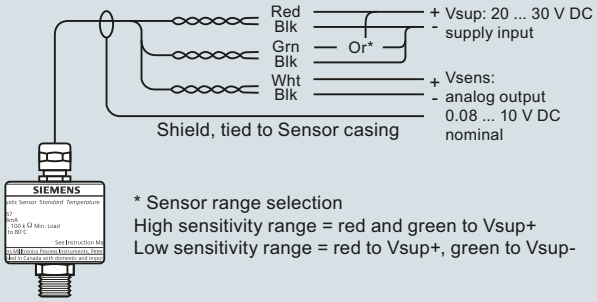


SITRANS AS100 (2D, 2G, XP version), dimensions in mm (inch)

6

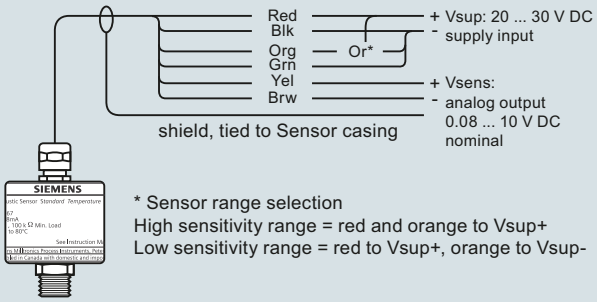
Circuit diagrams

Standard temperature range



* Sensor range selection
High sensitivity range = red and green to Vsup+
Low sensitivity range = red to Vsup+, green to Vsup-

Extended temperature range



* Sensor range selection
High sensitivity range = red and orange to Vsup+
Low sensitivity range = red to Vsup+, orange to Vsup-

Interconnection
The longer the cable, the more susceptible it is to noise and earth loops. It is therefore recommended to use cable with heavy gauge conductors and good RF/electrical shielding (copper braid rather than drain and foil). A proper junction box close to the sensor is an ideal location not only to extend the cable but also to configure the wiring for high or low sensitivity range operation.
The following table provides a guideline for suitable wire gauges where distances are considerable.

Max. distance between sensor and supply
(24 V or Control Unit).

	Wire size		Distance	
AWG	mm	mm²	meters	feet
24	7 x 0.20	0.25	500	1 600
22	7 x 0.25	0.35	800	2 600
20	10 x 0.25	0.5	1 200	3 900

SITRANS AS100 connections