SUCO ESI
North America

HYDROGEN Applications

PRESSURE SWITCHES & TRANSDUCERS

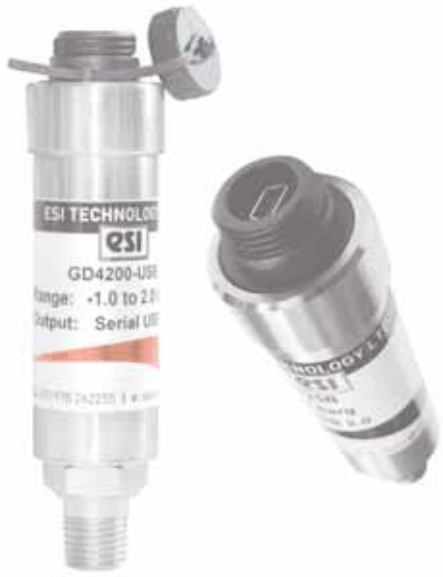
HYDROGEN

being the lightest and most abundant element in the universe, is used extensively in various sectors such as petrochemistry, energy, mobility, and production. Despite its potential, safety precautions are necessary due to its explosive nature. In recent years, hydrogen technology has developed significantly, playing a crucial role in climate-neutral energy generation and storage. With the ability to be used as a colorless gas or liquid, hydrogen is a versatile and promising element for a sustainable future.

SUCO ESI NORTH AMERICA

- Over 70 years of experience in pressure montoring
- Our products are 100% function tested and approved for hydrogen before they leave our production facility
- Protection against overload, overvoltage or short circuit
- Compliance with numerous national and international standards and certifications, such as ISO 9001: 2015

Trust us to provide you with top-quality pressure sensors that meet your needs.



CONTENTS

Hydrogen Mechanical Pressure Switches

SUCO ESI North America offers a wide range of pressure switches that are specifically designed for hydrogen applications. Our pressure switches, which are available in NO, NC, and CO configurations, are not only compact and robust but also H2-compliant. Made of SAE 316L stainless steel, they can withstand variable pressure ranges from 0.1 bar to 400 bar, ensuring reliable and accurate performance in even the harshest environments.

We also offer various threads and pre-wired versions, which can be customized to meet your specific requirements.

Series 0H86, 0H87, 0H83

Rated operating voltage U_e	**Rated operational current I_e**	**Usage category**
250 VAC 50 / 60 Hz	4 A	AC12
250 VAC 50 / 60 Hz	1 A	AC14
24 VDC	4 / 2 A	DC12 / DC13
50 VDC	2 / 1 A	DC12 / DC13
75 VDC	1 / 0,5 A	DC12 / DC13
125 VDC	0,3 / 0,2 A	DC12 / DC13
250 VDC	0,25 / 0,2 A	DC12 / DC13
Rated insulation voltage U_i	300 V	
Rated impulse withstand voltage U_{imp}	2,5 kV	
Conventional thermal electricity I_{the}	5 A	
Switching overvoltage	< 2,5 kV	
Rated frequency	DC and 50 / 60 Hz	
Rated current of the short-circuit device	up to 5 A	
Conditional short circuit current	< 350 A	

Series 0H64, 0H69, 0H86, 0H87, 0H96, 0H97, 0H83

Temperature range	EPDM -22 °F ... +248 °F (EPDM -30 °C ...+120 °C)
Burst pressure 0H64, 0H69	10,152 psi (700 bar)
Burst pressure 0H86, 0H96	10,152 psi (700 bar)
Burst pressure 0H87, 0H97, 0H83	14,503 psi (1,000 bar)
Switching frequency	200 / min
Mechanical lifetime	1.000.000 switching cycles (for diaphragm pressure switches, the service life applies only to switching pressures up to max. 50 bar)
Rate of pressure rise	≤ 1.000 bar/s
Hysteresis 0H64, 0H69	Not adjustable
Hysteresis (only adjustable in the factory)	Adjustable average value 10 ... 30% depending on type
Vibration resistance	10 g; 5 … 200 Hz Sinus; DIN EN 60068-2-6
Shock resistance	294 m/s^2; 14 ms Semi-sinus; DIN EN 60068-2-27, DIN EN 60068-2-27
Protection class	IIP65 with attached cable plug, terminals IP00
Weight 0H64, 0H69	appr. 90 g
Weight 0H86 / 0H87, 0H96 / 0H97, 0H83	appr.100 g

Overview switching capacity and materials

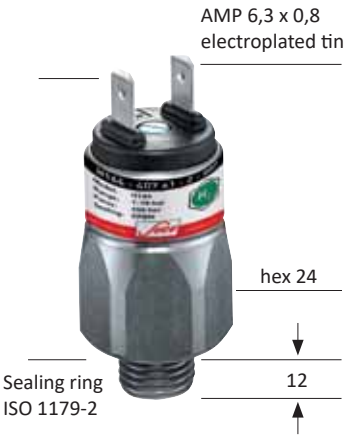
Type	**0H64**	**0H69**	**0H86 / 0H87**	**0H96 / 0H97**	**0H83**
5 … 24 VDC				●	
10 … 42 VAC/DC	●	●			
10 … 250 VAC/DC			●		●
3 … 50 mA				●	
10 mA … 4 A	●	●	●		●
Gold contacts				●	
Silver contacts	●	●	●		●
Adjustable hysteresis			●	●	●
Stainless steel 1.4404 (AISI 316L)	●	●	●	●	●

0H64

hex 24

Diaphragm pressure switch up to max. 42 V with stainless steel housing for hydrogen applications

- Setting range: 1.4 - 725 psi (0.1 - 50 bar)
- Overpressure-proof up to 8,700 psi (600 bar)
- Normally closed (NC), normally open (NO)
- Housing made of stainless steel 1.4404 (AISI 316L)
- With push-in connection



Suco RoHSIII compliant

Setting range (Tolerance for room temperature)	External thread	Part number NO contact ⟶ |:	Part number NC contact ⟶ :|
0H64 Diaphragm pressure switch with stainless steel housing			
1.4– 14.5 (±2.9) psi 0.1 – 1 (±0,2) bar	G 1/4-E ISO 1179-2	0H64 - 403 41 - 2 - 080	0H64 - 404 41 - 2 - 080
7.2 – 43.5 (±4.3) psi 0.5 – 3 (±0.3) bar	G 1/4-E ISO 1179-2	0H64 - 423 41 - 2 - 080	0H64 - 424 41 - 2 - 080
14.5 – 145 (± 7.25) psi 1 – 10 (±0,5) bar	G 1/4-E ISO 1179-2	0H64 - 407 41 - 2 - 080	0H64 - 408 41 - 2 - 080
145 – 290 (±14.5) psi 10 – 20 (±1) bar	G 1/4-E ISO 1179-2	0H64 - 411 41 - 2 - 080	0H64 - 412 41 - 2 - 080
290 – 725 (±29) psi 20 – 50 (±2) bar	G 1/4-E ISO 1179-2	0H64 - 415 41 - 2 - 080	0H64 - 416 41 - 2 - 080

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

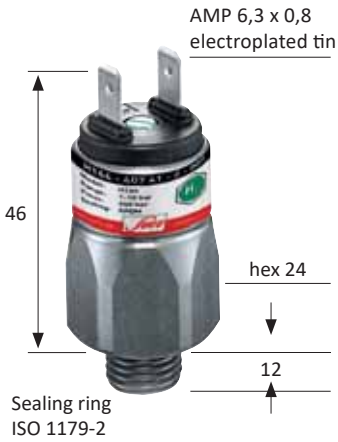
** We offer other seal and material combinations for numerous media.

0H69

hex 24

Piston pressure switch up to max. 42 V with stainless steel housing for hydrogen applications

- Setting range: 725 - 2,175 psi (50 - 150 bar)
- Overpressure-proof up to 8,700 psi (600 bar)
- Normally closed (NC), normally open (NO)
- Housing made of stainless steel 1.4404 (AISI 316L)
- With push-in connection or screw connection M3



Setting range (Tolerance for room temperature)	External thread	Part number NO contact ⟶ |:	Part number NC contact ⟶ :|
0H69 Piston pressure switch with stainless steel housing			
725 – 2,175 (± 72.5) psi 50 – 150 (± 5) bar	G1/4-E ISO 1179-2	0H69 - 419 41 - 2 - 080	0H69 - 420 41 - 2 - 080

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

** We offer other seal and material combinations for numerous media.

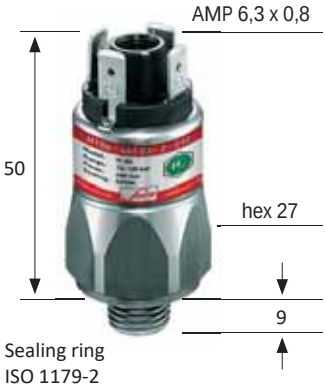
Suco RoHSIII compliant

0H86 / 0H87

hex 27

Diaphragm or piston pressure switch up to max. 250 V with plug-in connection for hydrogen applications

- Series 0H86 setting range: 7.2 - 1,450 psi (0.5 - 100 bar)
  Series 0H87 setting range: 725 - 2,900 psi (50 - 200 bar)
- Overpressure-proof up to 5,800 / 10,152 psi (400 / 700 bar)
- Changeover contact with silver contacts
- Housing made of stainless steel 1.4404 (AISI 316L)
- Hysteresis adjustable at the factory



RoHSIII compliant

CE

P_{max}	Setting range	Tolerance at room temperature	External thread	Article number

0H86 Diaphragm pressure switch with plug-in connection

5,801 psi (400 bar*)	7.2- 72.5 psi (0.5 – 5 bar)	± 4.4 psi (±0.3 bar)	G 1/4-E ISO 1179-2	0H86- 457 41- 2- 080
	14.5- 145 psi (1 – 10 bar)	±72.5 psi (±0.5 bar)		0H86- 458 41- 2- 080
	145 - 725 psi (10 – 50 bar)	±43.5 psi (±3.0 bar)		0H86- 459 41- 2- 080
	145 - 1,450 psi (10 – 100 bar)	±43.5- 72.5 psi (±3.0 – 5.0 bar)		0H86- 461 41- 2- 080

0H87 Piston pressure switch with plug-in connection

10,152 psi (700 bar*)	725 - 2,900 psi (50 – 200 bar)	±72.5 psi (±0.5 bar)	G 1/4-E ISO 1179-2	0H87- 460 41- 2- 080

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

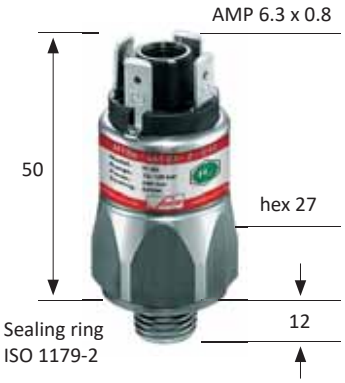
** We offer other seal and material combinations for numerous media.

0H96 / 0H97

hex 27

Diaphragm or piston pressure switch up to max. 24 V with plug-in connection for hydrogen applications

- Series 0H96 setting range: 7.2 - 1,450 psi (0.5 -100 bar)
  Series 0H97 setting range: 725 - 2,900 psi (50 - 200 bar)
- Changeover contacts (CO)
- With gold contacts overpressure safe up to 5,800 / 10,152 psi (400 / 700 bar*)
- Housing made of stainless steel 1.4404 (AISI 316L)
- Hysteresis adjustable at the factory



RoHSIII compliant

CE

P_{max}	Setting range	Tolerance at room temperature	External thread	Article number

0H96 Diaphragm pressure switch with plug-in connection

5,800 psi (400 bar*)	7.2 - 72.5 psi (0.5 – 5 bar)	±4.3 psi (±0.3 bar)	G 1/4-E ISO 1179-2	0H96 - 457 41 - 2 - 080
	14.5 - 145 psi (1 – 10 bar)	±72.5 psi (±0.5 bar)		0H96 - 458 41 - 2 - 080
	145 - 725 psi (10 – 50 bar)	±43.5 psi (±3.0 bar)		0H96 - 459 41 - 2 - 080
	145 - 1,450 psi (10 – 100 bar)	±43.5 - 72..5 psi (±3.0 – 5.0 bar)		0H96 - 461 41 - 2 - 080

0H97 Piston pressure switch with plug-in connection

10,152 psi (700 bar*)	725 - 2,900 psi (50 – 200 bar)	±72.5 psi (±5.0 bar)	G 1/4-E ISO 1179-2	0H97 - 460 41 - 2 - 080

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

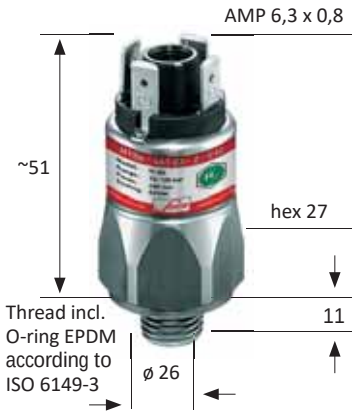
** We offer other seal and material combinations for numerous media.

0H83

hex 27

Piston pressure switch up to max. 250 V with plug-in connection for hydrogen applications

- Setting range: 1,450 - 5,800 psi (100 - 400 bar*)
- Changeover with silver contacts
- Overpressure safe up to 8,700 psi (600 bar), hysteresis adjustable at the factory
- Housing made of stainless steel 1.4404 (AISI 316L)
- Overall height only 51 mm



RoHS III compliant

CE

P_{max}	Setting range	Tolerance at room temperature	External thread	Article number

0H83 Piston pressure switch with plug-in connection

8,702 psi (600 bar*)	1,450 - 4,350 psi (100 – 300 bar)	± 145 psi (±10 bar)	M 14 x 1,5 DIN 6149-3	0H83 - 462 45 - 2 - 080
	2,900 - 5,800 psi (200 – 400 bar)			0H83 - 463 45 - 2 - 080

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

** We offer other seal and material combinations for numerous media.

0H44 / 0H45 ATEX Certified

ATEX protection zone	1 + 2	21 + 22	Mining
Substance group	Gases / Vapors	Dusts	Methane / Coal dust
Temperature range	EPDM -4 °F ... +176 °F (-20 °C ... +80 °C)		
Switching frequency	200 / min		
Mechanical lifetime	1.000.000 switching cycles		
Pressure rise rate	≤ 1.000 bar/s		
Hysteresis	10 ... 30 % (type-dependent, not adjustable)		
Vibration resistance	10 g; 5 ... 200 Hz sinus; DIN EN 60068-2-6		
Shock resistance	294 m/s^2; 14 ms semi-sinus; DIN EN 60068-2-27		
Cable length	Standard length ~2 m with ferrule, also available in ~5 m length as well as special length on request		
Protection class	IP65		
Cable cross section	3 x 0,5 mm^2		
Housing material	Stainless steel 1.4404 (AISI 316L)		
Weight in gram	appr. 230 g		

Electrical values

Rated operating voltage U_e	**Rated operational current I_e**
250 VAC 50 / 60 Hz, AC 12	2 A
250 VAC 50 / 60 Hz, AC 14	1 A
24 VDC, DC 12 / DC 13	2 / 1 A
50 VDC, DC 12 / DC 13	1 / 0,5 A
75 VDC, DC 12 / DC 13	0,5 / 0,25 A
125 VDC, DC 12 / DC 13	0,2 / 0,1 A
250 VDC, DC 12 / DC 13	0,15 / 0,1 A
Rated insulation voltage U_i	300 V
Rated impulse withstand voltage U_{imp}	4 kV
Conventional thermal electricity I_{the}	5 A
Switching overvoltage	< 2,5 kV
Rated frequency	DC and 50 / 60 Hz
Rated current of the short-circuit device	up to 3,5 A
Conditional short circuit current	< 350 A

0H44 / 0H45 ATEX Certified

Technical Explanations
The classification of explosion-proof pressure switches is made according to the respective flammable substances. The subdivision is made into:

Gases / Vapors	Dusts	Methane / Coal dust

ATEX / IECEx marking for pressure switches
Our pressure switches are designed for gases and vapors (G), dusts (D) and methane / coal dust (M) in mining.

The following table shows an overview of the Ex-protection zones, device groups and categories. The applications covered by our pressure switches (according to Ex-area) are highlighted.

Conditions in the hazardous area.

Combustible fabrics	**Temporary behavior of the flammable substances in the hazardous area**	**Division potentially explosive areas**	**Required marking of the usable equipment**	
			Device group	**Device category**
Dusts / Vapors	are present constantly, for a long time or frequently	Zone 0	II	1G
	occasionally occur	Zone 1	II	2G
	are unlikely to occur, if they do, only rarely or briefly	Zone 2	II	2G
Dusts	are present constantly, for a long time or frequently	Zone 20	III	1D
	occasionally occur	Zone 21	III	2D
	robably do not occur due to whir-led up dust, if so, only rarely or for a short time	Zone 22	III	3D or 2D
Methane / Coal dust	Operation with explosion hazard	–	I	M1
	Shutdown in case of explosion hazard	–	I	M2 or M1

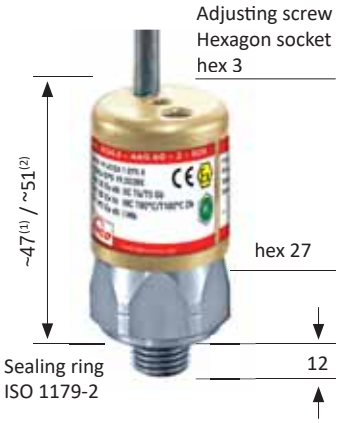
0H44 / 0H45

hex 27

Diaphragm or piston pressure switch up to max. 250 V with ATEX for hydrogen applications

ATEX CE II 2G Ex db IIC T6/T5 Gb (gases and vapors, zones 1 + 2)
ATEX CE II 2D Ex tb IIIC T80°C/T100°C Db (dusts, zones 21 + 22)
ATEX CE I M2 db I Mb (mining)
Approval according to IECEx system

- Series 0H44 setting range: 7.3 - 50 psi (0.3 - bar)
  Series 0H45 setting range: 725 - 2,175 psi (50 - 150 bar)
- Housing made of stainless steel 1.4404 (AISI 316L)
- Max. voltage 250 V, IP65, protection class 2, protective insulation
- Overpressure proof up to 4,350 / 8,700 psi (300 / 600 bar*)
- Custom cable length upon request
- Changeover contacts (CO)



P_{max}	Setting range	Tolerance at room temperature	External thread	Article number
0H44 Diaphragm pressure switch				
4,350 psi (300 bar*)	4.3 - 21.7 psi (0.3 – 1.5 bar)	± 2.9 psi (±0.2 bar)	G1/4-E ISO 1179-2	0H44 - 457 41 - 2 - 020
	14.5 - 145 psi (1 – 10 bar)	± 7.5 psi (±0.5 – 1 bar)		0H44 - 458 41 - 2 - 020
	145 - 290 psi (10 – 20 bar)	± 14.5 psi (±1 bar)		0H44 - 459 41 - 2 - 020
	20 - 50 psi (1.4 - 3.4 bar)	± 29 psi (±2 bar)		0H44 - 461 41 - 2 - 020
0H45 Piston pressure switch				
8,702 psi (600 bar*)	725 - 2,175 psi (50 – 150 bar)	± 72 psi (±5 bar)	G1/4-E ISO 1179-2	0H45 - 460 41 - 2 - 020

Sealing materials - areas of application

EPDM	Hydrogen, oxygen, water, forming gases, all inert and non-toxic gaseous or liquid media **	2

* Static value. Dynamic value 30 to 50 % lower.

** We offer other seal and material combinations for numerous media.

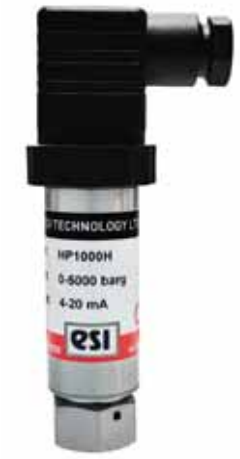
(1) Piston pressure switch

(2) Diaphragm pressure switch

HP1000H

Hydrogen Compatible High Pressure Transducer

- Pressure ranges to 72,500 psi (5,000 bar)
- High resistance to overpressure and pressure transients
- Compatible for use within Hydrogen based environments
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- ATEX/IECEx option available (includes M1 for mining applications) for 4-20 Ma versions



Output	Sensor Range	Wires	Type
10 mV/V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1000H
	Model above 2,000 bar	4	HP1100H
0-5 V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1001H
	Model above 2,000 bar	4	HP1001H
	Model to 2,000 bar (incl. 30,000 psi)	3	HP1011H
	Model above 2,000 bar	3	HP1111H
0-10 V	Model to 2,000 bar (incl. 30,000 psi)	4	HP1002H
	Model above 2,000 bar	4	HP1102H
	Model to 2,000 bar (incl. 30,000 psi)	3	HP1012H
	Model above 2,000 bar	3	HP1112H
4-20 mA	Model to 2,000 bar (incl. 30,000 psi)	2	HP1003H
	Model above 2,000 bar	2	HP1103H

Electrical Connection / Options

DIN EN175301 plug and socket	-
Cable outlet 1m screened	HA
M12 connector	HB
Cable outlet 1m screened IP67 protection	HC
ATEX/IECEx certified with DIN EN175301 plus and socket	EXH
DNV GL approval	MH
DNV GL approval plus ATEX/IECEx certified	EXG

Pressure Range

0-1000 bar (0-15,000 psi)	1000
0-1,500 bar (0-20,000 psi)	1500
0-2,000 bar (0-30,000 psi)	2000
0-3,000 bar (0-43,000 psi)	3000
0-4,000 bar (0-60,000 psi)	4000
0-5,000 bar (0-72,500 psi)	5000

Process Connection

Autoclave F-250-C female	DE
M16 x 1.5 female cone seal	FK

HI2000H

Hydrogen Compatible High Precision Pressure Transducer

- Pressure ranges to 20,000 psi (1,500 bar)
- High accuracy and performance
- Specialist titanium alloy sensor for excellent chemical compatibilit
- High thermal stability over wide operating temperature
- TEDS Version available

Output	Sensor Range	Wires	Type
10 mV/V	Cable outlet 1m PTFE	4	HI2000H
	MIL-C-26482 6 pin bayonet	4	HI2010H
0-5 V	Cable outlet 1m PTFE	4	HI2001H
		3	HI2004H
	MIL-C-26482 6 pin bayonet	4	HI2011H
		3	HI2014H
0-10 V	Cable outlet 1m PTFE	4	HI2002H
		3	HI2005H
	MIL-C-26482 6 pin bayonet	4	HI2012H
		3	HI2015H

Electrical Connection / Options

No special option required	-
ATEX / IECEx certified (HI2000 & HI2010 only)	EXH (HI2000 and HI2010 only)

Pressure Range

0-1 barVac	V001
0-1 bar (0-15 psi)	0001
0-10 bar (0-150 psi)	0010
0-25 bar (0-300 psi)	0025
0-100 bar (0-1,500 psi)	0100
0-250 bar (0-3,000 psi)	0250
0-400 bar (0-5,800 psi)	0400
0-600 bar (0-8,700 psi)	0600
0-1,000 bar (0-14,500 psi)	1000
0-1,500 bar (0-20,000 psi)	1500

Process Connection

1/4” BSP male (G1/4)	AB
1/4” NPT male	AM

GS4200H

General Purpose Hydrogen Pressure Transducer

- Pressure ranges to 20,000 psi (1,500 bar)
- High resistance to overpressure and pressure transients
- Compatible for use within Hydrogen based environments
- Tested to ISO 11114-2:2017 according to EC79/2009 and EU406/2010
- Excellent corrosion resistance

Output	Wires	Type
4-20 mA	2	GS4200H
10 mV/V	4	GS4201H
0-5 V	4	GS4202H
	3	GS4212H
0-10 V	4	GS4203H
	3	GS4213H

Electrical Connection / Options

DIN EN175301 plug and socket	-
Cable outlet 1m screened	HA
M12 connector	HB
Cable outlet 1m screened IP67 protection	HC
ATEX/IECEx certified with DIN EN175301 plus and socket	EXH
DNV GL approval	MH
DNV GL approval plus ATEX/IECEx certified	EXG

Pressure Range

0-1 barVac	V001
0-0.5 bar (0-7.25 psi)	00.5
0-1 bar (0-15 psi)	0001
0- 2.5 bar (0-36 psi	02.5
0-6 bar (0-87 psi)	0006
0-10 bar (0-150 psi)	0010
0- 16 bar (0-232 psi)	0016
0-25 bar (0-300 psi)	0025
0-100 bar (0-1,500 psi)	0100
0-250 bar (0-3,000 psi)	0250
0-400 bar (0-5,800 psi)	0400
0-600 bar (0-8,700 psi)	0600
0-1,000 bar (0-14,500 psi)	1000
0-1,500 bar (0-20,000 psi)	1500

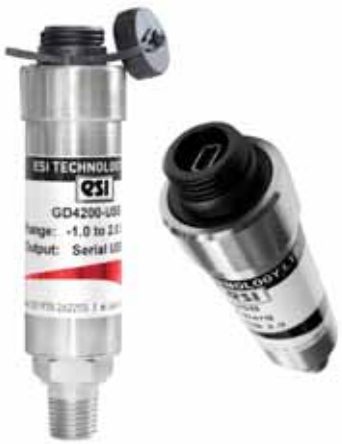
Process Connection

1/4” BSP male (G1/4)	AB
1/4” NPT male	AM

GD4200HUSB

Hydrogen Compatible USB Pressure Transducer

- Pressure ranges from vacuum to 72,500 psi (5,000 bar)
- Sample rate software selection up to 1,000 Hz
- Accuracy (NLHR) ±0.15% of span BFSL
- Measure & record up to 16 pressure inputs together
- Automatic temperature compensation



Output	Type
Dynamic (1,000 Hz)	GD4200HUSB

Electrical Connection

Mating to USB mini B socket

Pressure Range

-1 to 2.5 bar (-14 to 36 psi)	02.5
0-16 bar (0 - 232 psi)	0016
0-100 bar (0 - 1,450 psi)	0100
0-400 bar (0 - 5,800 psi)	0400
0-1,000 bar (0 - 14,500 psi)	1000
0-1,500 bar (0 - 21,755 psi)	1500
0-2,000 bar (0 - 29,000 psi)	2000
0-4,000 bar (0 - 58,015 psi)	4000
0-5,000 bar (0 - 72,518 psi)	5000

Process Connection

1/4” BSP male (G1/4)	AB
1/4” NPT male	AM
Autoclave F-250-C female (for pressures above 1,500bar)	DE

SUCO ESI North America

THE WORLDWIDE SPECIALIST FOR CUSTOMIZED PRESSURE SWITCHES & TRANSDUCERS

SUCO ESI North America has become one of the leading suppliers for specialized pressure sensors by offering bespoke solutions for specific applications.

Our pressure switches and transducers ensure accurate and dependable monitoring and control of liquid and gaseous hydrogen pressure in a wide range of industrial applications.

From climate-neutral energy generation and storage in fuel cells and tanks to H2 transportation in ships, trains and vehicles, our products are designed to offer unparalleled performance and durability.

Trust us to provide you with the best solutions for all your hydrogen pressure monitoring needs.

Contact us today to experience our unmatched quality and service!

Contact Us

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