



Genspec[®] GS4000

GENERAL PURPOSE TRANSDUCER



- THICK FILM STRAIN GAUGE TECHNOLOGY
- PRESSURE RANGES
0-500mbar TO 0-700bar
- OUTPUT OPTIONS 2mV/V,
0-5Vdc, 0-10Vdc AND 4-20mA
- ACCURACY $\pm 0.40\%$ NLHR
- ALL STAINLESS STEEL
CONSTRUCTION
- LOW COST

DESCRIPTION

The Genspec GS4000 series of general-purpose pressure transducers is designed for applications where economical price and reliable pressure measurement is required. Incorporating bonded strain gauge technology and utilising unique manufacturing techniques results in a low cost, high quality transducer ideal for O.E.M applications.

Constructed from stainless steel with 17/4PH stainless steel diaphragm for ranges above 20bar, and a ceramic diaphragm for lower ranges, the GENSPEC series of transducers are of a robust yet compact design. Applications include the continuous pressure monitoring of oil, gas, water and other liquids in a wide range of industries.

GENSPEC transducers are compatible with the PM8000 range of panel meters and controllers which together offer a simple low cost and accurate pressure measuring and control system.

Available in pressure ranges from 0-0.5bar to 0-700bar, gauge or absolute and electrical outputs 2mV/V, 0-5Vdc, 0-10Vdc and 4-20mA.

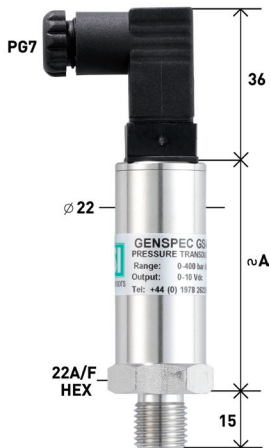


PRESSURE RANGES

0 - 1 bar vac through to 700bar, see table below for list of all standard pressure ranges.

Range (bar)	Order Code	Range (bar)	Order Code	Abs Range (bar)	Order Code
0-1 Vac	V001	0-25	0025	0-0.5	0.5A
0-0.5	00.5	0-40	0040	0-1	001A
0-1	0001	0-60	0060	0-1.6	1.6A
0-1.6	01.6	0-100	0100	0-2.5	2.5A
0-2.5	02.5	0-160	0160	0-4	004A
0-4	0004	0-250	0250	0-6	006A
0-6	0006	0-400	0400	0-10	010A
0-10	0010	0-600	0600	0-16	016A
0-16	0016	0-700	0700	0-25	025A

DIMENSIONS (in mm)

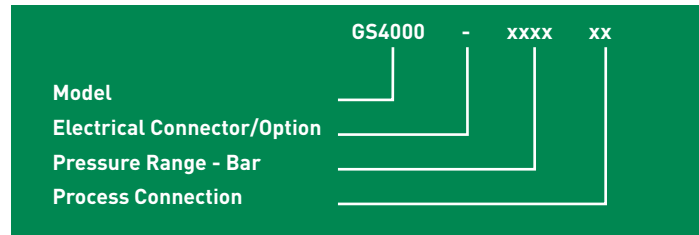


Model	Dimension 'A'
GS4000/GS4100	36
GS4101,2,3	55
GS4001,2,3	64

ELECTRICAL CONNECTION (mA)	
Pin No.	2 wire
1	+supply
2	4-20mA signal
3	not fitted
⊥	to case

ELECTRICAL CONNECTION (Vdc)		
Pin No.	4 wire	3 wire
1	-supply	common
2	+supply	+supply
3	+output	+output
⊥	-output	to case

ORDERING INFORMATION



Output	Model No.	Ranges
2mV/V	GS4000	above 20 bar
0-5Vdc	GS4001	above 20 bar
0-10Vdc	GS4002	above 20 bar
4-20mA	GS4003	above 20 bar
2mV/V	GS4100	20 bar and below
0-5Vdc	GS4101	20 bar and below
0-10Vdc	GS4102	20 bar and below
4-20mA	GS4103	20 bar and below

Electrical Connection / Option

- Micro DIN plug and socket
- Cable outlet 1 metre screened
- M12 connector
- Cable outlet 1metre IP67 gland

Process Connection

- 1/4" BSP male thread
- 1/4" NPT male thread

EXAMPLE

Output signal 4-20mA (20 bar and below)
 Micro DIN plug and socket
 Pressure range 0-6 barg
 Pressure connection 1/4" BSP male
Correct Part Number
 For options not listed contact sales team

Order Code

-
- A
- B
- L

Order Code

- AB
- AM

Order Code

- GS4103
-
- 0006
- AB
- GS4103-0006AB

SPECIFICATION

PRESSURE REFERENCE

Gauge (to 700bar) or absolute (to 25bar)

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above $\pm 0.5\%$ FS.
 1.6x for ranges -1bar to 20bar
 2x for ranges 25bar to 250bar
 1.5 for 400bar to 700bar

OUTPUT SIGNAL (OPTIONS)

4-20mA (2 wire),
 0-5Vdc (3 or 4 wire),
 0-10Vdc (3 or 4 wire),
 2mV/V (4 wire)

ZERO OFFSET AND SPAN TOLERANCE

$\pm 1.0\%$ FS

SUPPLY VOLTAGE (U_b)

Measured across supply terminals on connector plug
 13-36Vdc for 4-20mA versions
 13-30Vdc for 0-5Vdc and 0-10Vdc versions
 5-15Vdc for 2mV/V versions

PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc

LOAD DRIVING CAPABILITY(4-20mA VERSION ONLY)

Calculate maximum load $R_s = (U_b - 13V) / 20mA$
 e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.40\%$ FS. Typical max. Best fit straight line.

PRESSURE MEDIA

All fluids compatible SAE 303 stainless steel, Alumina and Nitrile seal for ranges up to 20bar, and 17/4PH and SAE 303 stainless steel for ranges above.

OPERATING TEMPERATURE RANGE

Ambient/Media: -20°C to +85°C
 Storage: +5°C to +40°C

TEMPERATURE EFFECTS

$\pm 2\%$ FS total error band for -20°C to +70°C Typical thermal zero and span coefficients $\pm 0.03\%$ FS/°C

ELECTROMAGNETIC-COMPATIBILITY

Emissions; EN61000-6-4
 Immunity; EN61000-6-2
 Certification; CE marked

PRESSURE CONNECTION

1/4" BSP or 1/4" NPT male (others on request)

ELECTRICAL CONNECTION

Mating micro DIN socket with screw terminal connections, rated IP65. Options include flying lead with optional cable length and IP67 cable gland or M12.

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Genspec[®] GS4200

GENERAL PURPOSE PRESSURE TRANSDUCER



- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES
0-500mbar TO 0-1500bar
- $\pm 0.25\%$ ACCURACY NLHR
- 4-20 mA OUTPUT AS STANDARD (0-100mV, 0-5Vdc or 0-10Vdc OPTIONAL)
- OPTIONAL ATEX APPROVED VERSION (4-20mA ONLY)
- OUTSTANDING PERFORMANCE AND STABILITY

DESCRIPTION

The GENSPEC GS4200 pressure transmitter is designed to meet the operational requirements of demanding pressure measurement applications where good quality, fast delivery and low cost are of the highest priority.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. The advanced sensor design consists of a piezoresistive silicon strain gauge circuit, which is epitaxially grown onto the surface of a sapphire diaphragm to form a single crystalline structure. The sapphire sensor element is then molecularly bonded to a titanium alloy sub-diaphragm. This enables the sensor to endure higher over-pressures and provides superb corrosion resistance. The completed sensor exhibits virtually no hysteresis and excellent long-term stability. With outstanding insulation properties, the sapphire substrate allows the sensor to operate over a very wide temperature range without loss of performance.

Accuracy is $\pm 0.25\%$ with a typical over pressure limit of twice the rated pressure range, this together with the standard output of 4-20 mA and easy access for re-calibration affirm the excellent design. All models are supplied with integral 1/4" BSP or alternative pressure connections. Optional connections are available. The all titanium alloy wetted parts offer unbeatable corrosion resistance. Versions are also available offering IP66 sealing for installations requiring high levels of environmental protection. Applications for the GS4200 include the continuous monitoring of hydraulic systems with oil, gas, water and other process liquids, industrial, medical and aerospace industries. Also ideal for the measurement and control of pressure in refrigeration, pneumatic, compressor, HVAC and engine monitoring systems.

An optional ATEX certified version of this product is available approved for explosion protection for flammable gases (zone 0), dusts (zone 20) and mining areas (group I MI).

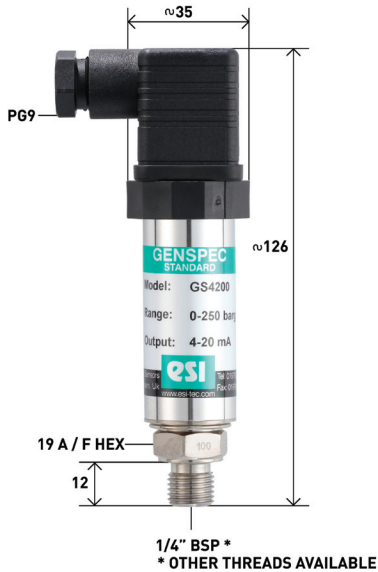


PRESSURE RANGES

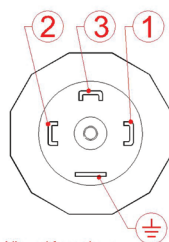
0 - 1 bar vac through to 1500 bar, see table below for list of all standard pressure ranges.

Range (bar)	Order Code	Range (bar)	Order Code
0-1 Vac	V001	0-40	0040
0-0.5	00.5	0-60	0060
0-1	0001	0-100	0100
0-1.6	01.6	0-160	0160
0-2.5	02.5	0-250	0250
0-4	0004	0-400	0400
0-6	0006	0-600	0600
0-10	0010	0-700	0700
0-16	0016	0-1000	1000
0-25	0025	0-1500	1500

DIMENSIONS (in mm)



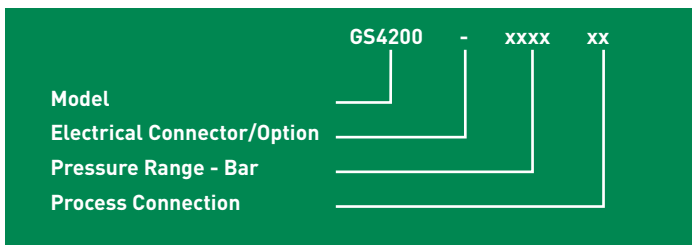
ELECTRICAL CONNECTION (mA)	
Pin No.	2 wire
1	+supply
2	4-20mA signal
3	not fitted
⊥	to case



Viewed from above with socket removed.

ELECTRICAL CONNECTION (Vdc)		
Pin No.	4 wire	3 wire
1	-supply	common
2	+supply	+supply
3	+output	+output
⊥	-output	to case

ORDERING INFORMATION



OUTPUT

4-20mA
0-100mV
0-5Vdc
0-10Vdc

ELECTRICAL CONNECTION/OPTION

DIN 43650 plug and socket
Cable outlet 1 metre screened
ATEX certified with DIN43650 plug and socket

PROCESS CONNECTION

1/4" BSP male thread
1/4" NPT male thread

EXAMPLE

Output signal 4-20mA
ATEX certified with DIN43650 plug and socket
Pressure range 0-100bar
Pressure connection 1/4" BSP male
Correct Part Number

For options not listed contact sales team

Model No.

GS4200
GS4201
GS4202
GS4203

Order Code

-
A
EX

Order Code

AB
AM

Order Code

GS4200
EX
0100
AB
GS4200EX0100AB

SPECIFICATION

PRESSURE REFERENCE

Gauge

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above $\pm 0.5\%$ FS.
4x for 0.5bar range
2x for ranges 1bar-600bar
1.5x for 1000bar
1.1x for 1500bar

OUTPUT SIGNAL

4-20 mA (2 wire configuration) as standard.
Optional outputs available are
0-5Vdc (3 or 4 wire)
0-10Vdc (3 or 4 wire)
0-100mV for ranges from 1bar and above (4 wire)

ZERO OFFSET AND SPAN TOLERANCE

± 0.08 mA
 $\pm 0.5\%$ FS adjustment with easy access trimming potentiometers on amplified version only.

SUPPLY VOLTAGE (U_b)

Measured across supply terminals on connector plug
10-36Vdc for 4-20mA versions
13-30Vdc for 0-5Vdc and 0-10Vdc versions
10Vdc for 0-100mV version (Ratiometric output for 5-15Vdc)

PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc

LOAD DRIVING CAPABILITY(4-20mA version only)

Calculate maximum load $R_s = (U_b - 10V) / 20mA$
e.g. with supply voltage load of 36vdc, maximum load is 1300ohms

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.25\%$ FS Typical Max, best fit straight line

PRESSURE MEDIA

All fluids compatible with titanium alloy.

OPERATING TEMPERATURE RANGE

Ambient: -40°C to +85°C
Media: -50°C to +125°C
Storage: +5°C to +40°C

TEMPERATURE EFFECTS

$\pm 1.5\%$ FS total error band for -20°C to +70°C
Typical thermal zero and span coefficients $\pm 0.015\%$ FS/°C

ATEX APPROVAL (4-20mA version only)

Ex II 1 G Ex ia IIC T4 Ga (zone 0)
Ex II 1 D Ex ia IIIC T135°C Da (zone 20)
EX I M 1 Ex ia I Ma (group I M1)

ATEX SAFETY VALUES

U_i = 28V
I_i = 119mA
P_i = 0.65W
L_i = 0.1
C_i = 74nF
Temperature Range = -20°C to +70°C
Max. cable length = 45m

ELECTROMAGNETIC-COMPATIBILITY

Emissions: EN61000-6-3
Immunity: EN61000-6-2
Certification: CE marked

PRESSURE CONNECTION

1/4" BSP or 1/4" NPT male (others on request)

ELECTRICAL CONNECTION

Mating socket with screw terminal connections to DIN 43650, rated IP65. Cable entry P69.
Options include; alternative connectors; flying lead with optional cable length and cable gland rated to IP66.





Genspec[®] GS4200-USB

USB POWERED DIGITAL PRESSURE TRANSDUCER



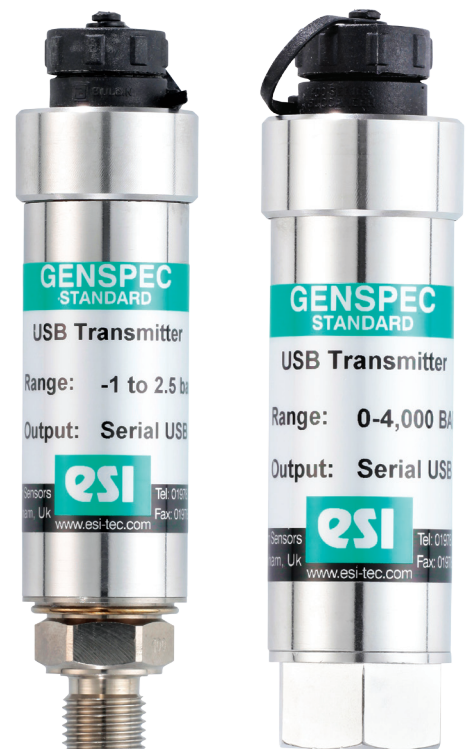
DESCRIPTION

The GS4200-USB[®] Digital Pressure Transducer has been designed to measure, analyse and record pressure directly on your computer without the need for costly I/O interface boards. It allows the user to measure up to 16 pressure inputs simultaneously and easily create customised test certificates.

The transducer is powered by the computer's USB port, data is then presented on the PC via the ESI-USB[®] configurable Windows Interface software supplied with the transducer. It has instant connection with auto-detection, and will configure automatically with your desktop or laptop pc via USB protocol. The sample rate enables dynamic pressures to be measured with up to 21 bit resolution. For real-time analysis, data transferred to the PC is achieved without loss of accuracy or bandwidth. This pressure transducer is USB 1.1 and USB 2.0 compatible, the ESI-USB[®] interface configuration and analysis software is compatible with Windows[®] 7 (32bit & 64bit), Vista, XP & 2000. Data can be displayed in graphical or tabular form, with a choice of pressure units and fully adjustable scales. Data can be saved to a file or exported to Excel.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. Excellent measurement accuracy provides high resolution with a precision greater than 1 in 10,000. Pressure ranges are available from 2.5bar to 4000bar. Each unit is supplied with ESI-USB[®] software, 2m USB lead rated to IP68 and a convenient carry case.

- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-2.5bar TO 0-4000bar
- ACCURACY 0.15% NLHR
- AUTO DETECTION AND CONFIGURATION
- USB 1.1 AND USB 2.0 FULL SPEED COMPATIBLE
- ESI-USB[®] SOFTWARE SUPPLIED
- 2M LEAD & CARRY CASE INCLUDED
- MEASURES UP TO 16 INPUTS SIMULTANEOUSLY
- CREATE CUSTOMISED TEST CERTIFICATES
- INCLUDES BUILT-IN TEMPERATURE MONITORING

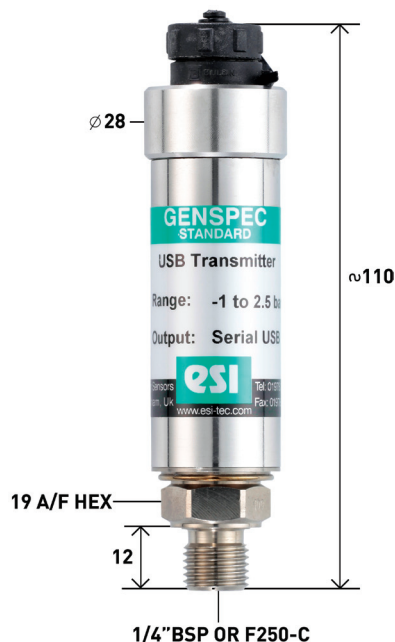


PRESSURE RANGES

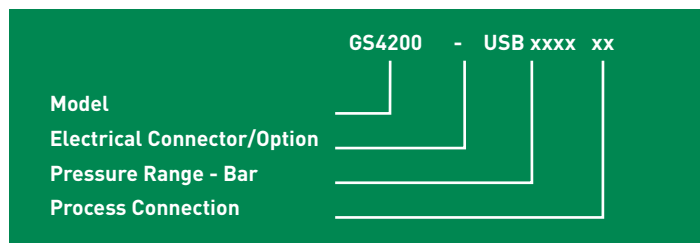
-1 to 2.5bar through to 4000 bar, see table below for list of all standard pressure ranges.

Range (bar)	Order Code	Range (bar)	Order Code
-1-2.5	02.5	0-2000	2000
0-16	0016	0-3000	3000
0-100	0100	0-4000	4000
0-400	0400		
0-1500	1500		

DIMENSIONS (in mm)



ORDERING INFORMATION



ELECTRICAL CONNECTION/OPTION

2 metre A to USB mini B lead

PROCESS CONNECTION

1/4" BSP male thread

1/4" NPT male thread

9/16" x 18 UNF-2B F250C Autoclave (2000bar +)

EXAMPLE

2 metre A to USB mini B lead

Pressure range 0-100barg

Pressure connection 1/4" BSP male

Correct Part Number

For options not listed contact sales team

Order Code

GS4200-USB

Order Code

AB

AM

DE

Order Code

GS4200-USB

0100

AB

GS4200-USB0100AB

DISCLAIMER :

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SPECIFICATION

PRESSURE REFERENCE

Gauge (default). Absolute reference input by user.

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above $\pm 0.5\%FS$.

2x for ranges up to 400bar

1.5x for 1500bar

1.5x for 2000bar

1.25x for 4000bar

OUTPUT SIGNAL

USB 1.1 and USB 2.0 full speed connection.

RECALIBRATION

Fully configured and re-calibrated via PC software, including pressure unit selection linearity and temperature compensation adjustment.

SUPPLY VOLTAGE

5Vdc via USB bus.

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.15\%FS$ Typical Max. Best fit straight line.

PRESSURE MEDIA

All fluids compatible with titanium alloy.

RESOLUTION

Up to 21 bit pressure measurement.

OPERATING TEMPERATURE RANGE

Ambient: $-20^{\circ}C$ to $+85^{\circ}C$

Media: $-50^{\circ}C$ to $+125^{\circ}C$

Storage: $+5^{\circ}C$ to $+40^{\circ}C$

ELECTROMAGNETIC CAPABILITY

Certification: CE marked

PRESSURE CONNECTION

1/4" BSP male or F250-C (Autoclave)

ELECTRICAL CONNECTION

Mating to USB Mini B socket for cable connection to PC. Supplied with 2m USB lead rated to IP68 as standard.





Genspec[®] GS5000

GENERAL PURPOSE PRESSURE TRANSDUCER



- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-10bar TO 0-600bar
- ACCURACY $\pm 0.25\%$ NLHR
- 4-20mA OUTPUT AS STANDARD (0-10Vdc OPTIONAL)
- TITANIUM AND STAINLESS STEEL WETTED PARTS
- M12 & DIN 43650 ELECTRICAL CONNECTION
- ROBUST DESIGN

DESCRIPTION

The GENSPEC GS5000 pressure transmitter is designed to meet the operational requirements of demanding pressure measurement applications where good quality, fast delivery and low cost are of the highest priority.

The unique Silicon-on-Sapphire sensor technology provides outstanding performance and gives excellent stability over a wide temperature range. The advanced sensor design consists of a piezoresistive silicon strain gauge circuit, which is epitaxially grown onto the surface of a sapphire diaphragm to form a single crystalline structure. The sapphire sensor element is then molecularly bonded to a titanium alloy sub-diaphragm. This enables the sensor to endure higher over-pressures. The completed sensor exhibits virtually no hysteresis and excellent long-term stability. With outstanding insulation properties, the sapphire substrate protects the strain gauge and allows the sensor to operate over a very wide temperature range without loss of performance.

Accuracy is $\pm 0.25\%$ with an over pressure limit of 4 times typically the rated pressure range. The standard output is 4-20mA. All models are supplied with integral G1/4 type A or E thread with other optional connections available. The titanium and stainless steel wetted parts offer excellent corrosion resistance. Versions are also available offering IP66 sealing for installations requiring high levels of environmental protection. Applications for the GS5000 include the continuous monitoring of hydraulic systems with oil, gas and water.

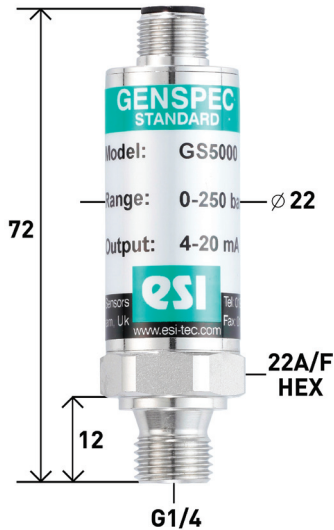


PRESSURE RANGES

0 to 10bar through to 0 to 600bar, see table below for list of all standard pressure ranges.

Range (bar)	Order Code	Range (bar)	Order Code
0-10	0010	0-100	0100
0-16	0016	0-160	0160
0-25	0025	0-250	0250
0-40	0040	0-400	0400
0-60	0060	0-600	0600

DIMENSIONS (in mm)



ELECTRICAL CONNECTION

DIN43650

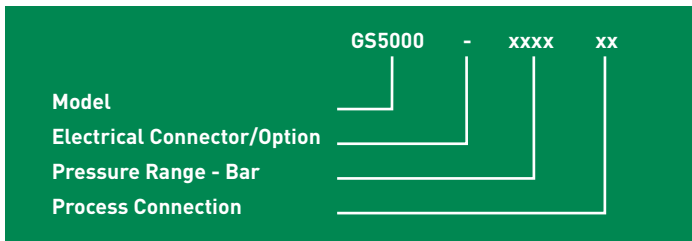
Pin No.	2 wire	3 wire
1	+supply	common
2	4-20mA signal	+supply
3	n/c	+output to case

ELECTRICAL CONNECTION

M12

Pin No.	2 wire	3 wire
1	+supply	+supply
2	n/c	+output
3	4-20mA signal	common
4	n/c	n/c

ORDERING INFORMATION



Output

4-20mA (2wire)
0-10Vdc (3wire)

Electrical Connection / Option

DIN 43650 plug and socket
M12 connector

Process Connection

1/4" BSP male DIN3852-A
1/4" BSP male DIN3852-E with Viton Gasket
1/4" NPT male thread

EXAMPLE

Output signal 4-20mA
M12 connector
Pressure range 0-400barg
1/4" BSP male DIN3852-E with Viton Gasket
Correct Part Number

For options not listed contact sales team

Model No.

GS5000
GS5002

Order Code

-

A

FA

FE

AM

AM

Order Code

GS5000

A

0400

FE

GS5000A0400FE

SPECIFICATION

PRESSURE REFERENCE

Gauge

OVERPRESSURE

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above $\pm 0.5\%FS$.

4x (typical) for ranges up to 400bar
1650bar maximum for 600bar version

OUTPUT SIGNAL

4-20mA (2 wire configuration) as standard.
Optional outputs available are 0-10Vdc (3 wire)

SUPPLY VOLTAGE(U_b)

Measured across supply terminals on connector plug
10-36Vdc for 4-20mA (2 wire)
13-30Vdc for 0-10Vdc (3 wire)

PROTECTION OF SUPPLY VOLTAGE

Protected against supply voltage reversal up to 50Vdc

LOAD DRIVING CAPABILITY

4-20mA version $< (U_b - 10V) / 20mA$
0-10Vdc version $> 4.7k\Omega$

ACCURACY (NON LINEARITY, HYSTERESIS & REPEATABILITY)

$\pm 0.5\%$ Tolerance
 $\pm 0.25\%$ FS NLHR (typical)

PRESSURE MEDIA

All fluids compatible with titanium alloy and stainless steel

OPERATING TEMPERATURE RANGE

Compensated: $-40^\circ C$ to $+85^\circ C$
Ambient: $-40^\circ C$ to $+125^\circ C$
Media: $-50^\circ C$ to $+125^\circ C$

TEMPERATURE EFFECTS

Typical thermal zero and span coefficients $\pm 0.01\%FS/^\circ C$

ELECTROMAGNETIC-COMPATIBILITY

Emissions: EN61000-6-3
Immunity: EN61000-6-2
Certification: CE marked

PRESSURE CONNECTION

G1/4 Male type A and E

ELECTRICAL CONNECTION

Mating socket with screw terminal connections to DIN 43650, rated IP65 or M12 rated IP67. Options include flying lead with optional cable length.

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