

GE

Measurement & Control

UNIK 5800/5900

Flameproof/Explosion-Proof Pressure Sensing Platform



The 5800 and 5900 are compact and rugged versions of the high performance UNIK 5000 pressure sensing platform offering both flameproof/explosion-proof or dust ignition protection by enclosure capability as required. They provide a lightweight and cost effective alternative to pressure gauges and switches in process and in oil and gas industry applications.



High Quality

With 35 years of pressure measurement experience, our field-proven Druck silicon technology is at the heart of the new platform, resulting in a range of high quality, high stability pressure sensors.

Bespoke as Standard

Custom-built from standard components, manufacturing sensors to your requirement is fast and simple; each UNIK 5000 is a “bespoke” pressure sensing solution, but with the short lead times and competitive pricing you would expect from standard products.

Expertise

We have the people and the knowledge to support your needs for accurate and reliable product performance; our team of experts can help you make the right sensor selection, guiding you and providing the help and tools you need. It is important that you ensure that the sensor materials and performance selected are suitable for your application.

Features

- Ranges from 3.5 bar (51 psi) to 700 bar (10,000 psi)
- Accuracy to $\pm 0.04\%$ Full Scale (FS) Best Straight Line (BSL)
- Stainless Steel construction
- Integrated terminal compartment with long or short body (5900)
- Frequency response to 3.5 kHz
- High over pressure capability
- Hazardous Area certifications
- mV, mA and voltage outputs



GE imagination at work

5800/5900 Specifications

Measurement

Operating Pressure Ranges

Gauge Ranges

Any zero based range between 3.5 and 50 bar (51 to 725 psi)

Sealed Gauge Ranges

Any zero based range between 10 and 700 bar (145 to 10,000 psi)

Absolute Ranges

Any zero based range between 3.5 bar and 700 bar (51 to 10,000 psi)

Non Zero Based Ranges

Non zero based ranges are available. Please contact GE Measurement & Control to discuss your requirements

Over Pressure

- 4 × FS (up to 200 bar for ranges ≤ 50 bar and up to 1200 bar for ranges > 50 bar)

Containment Pressure

Ranges up to 50 bar (725 psi) gauge 6 × FS (200 bar (2900 psi) max)

Ranges up to 50 bar (725 psi) absolute/sealed gauge 200 bar (2900 psi)

Ranges above 50 bar (725 psi) absolute/sealed gauge 1200 bar (17400 psi)

Supply and Outputs

Electronics Option	Description	Supply voltage (V)	Output	Current Consumption (mA)
0	mV Passive	2.5 to 12	10 mV/V [^]	<2 at 10 V
1	mV Linearised	7 to 12	10 mV/V [^]	<3
2	mA	7 to 28**	4-20 mA	<30
3	0 to 5 V 4-wire	7 to 16**	0 to 5 V	<3
4	0 to 5 V 3-wire	7 to 16**	0 to 5 V*	<3
5	1 to 6 V 3-wire	7 to 16**	1 to 6 V	<3
6	0 to 10 V 4-wire	12 to 16**	0 to 10 V	<3

[^] with a 10 volt supply mV output sensors give 100 mV over the full scale pressure. Output is ratiometric to the supply voltage.

*0 to 5 V 3-wire output is non true zero. At pressures below 1% of span the output will be fixed at approximately 50 mV

**32 V maximum for non-hazardous area operation

Supply Sensitivity

±0.005% FS/Volt (Voltage and current version only)

Power-Up Time

- mV, Voltage and current versions: 10 ms

Insulation Resistance/Isolation

- 500 Vdc: 100 MΩ
- 500 Vac: ≤ 5 mA leakage current (mV and mA versions only).

Performance Specifications

There are three grades of performance specification:
Industrial, Improved and Premium

Accuracy

Voltage, Current and mV Linearised

Combined effects of non-linearity, hysteresis and repeatability:

Industrial:	±0.2% FS BSL
Improved:	±0.1% FS BSL
Premium:	±0.04% FS BSL

mV Passive

≤ 50 bar	
Industrial/Improved:	±0.2% FS BSL
Premium not available	
> 50 bar	
Industrial/Improved:	±0.5% FS BSL
Premium not available	

Zero Offset and Span Setting

5900 electrical connector allows access to potentiometers that give at least ±5% FS adjustment

Factory set to:

Product Description	Industrial	Improved and Premium
Current and Voltage Versions (5900)	±0.5% FS	±0.2% FS
Current and Voltage Versions (5800)	±1.0% FS	±1.0% FS
mV Versions	±3.0 mV	±3.0 mV

Long Term Stability

±0.05% FS typical (±0.1% FS maximum) per year

Temperature Effects

Three compensated temperature ranges can be chosen.

Industrial Accuracy performance:

-10 to +50 °C (14 to +122 °F):	±0.75% FS
	Temperature error band (TEB)

-20 to +80 °C (-4 to 176 °F):	±1.5% FS TEB
-40 to +80 °C (-40 to 176 °F):	±2.25% FS TEB

Improved and Premium Accuracy performance:

-10 to +50 °C (14 to +122 °F):	±0.5% FS TEB
-20 to +80 °C (-4 to 176 °F):	±1.0% FS TEB
-40 to +80 °C (-40 to 176 °F):	±1.5% FS TEB

Physical Specifications

Environmental Protection

See Electrical Connector section

Operating Temperature Range

See Electrical Connector section

Pressure Media

Fluids compatible with Stainless Steel 316L and Hastelloy C276.

Enclosure Materials

Stainless steel (body), Viton (O-ring)*, PTFE (vent filter), Cable sheaths as specified (see Electrical Connector).

*Note: 5900 only.

Pressure Connector

For available options, see Ordering Information.

Electrical Connector

Various electrical connector options are available offering different features:

Code Number	Description	Max Operating temp range		IP rating	Zero span Adjust
		°C	°F		
5	M20 Male Conduit with Polyurethane Cable	-40 to +80	-40 to +176	67*	N
8	½" NPT Male Conduit with Polyurethane Cable	-40 to +80	-40 to +176	67*	N
B	M20 Female Conduit with Terminal	-40 to +100	-40 to +212	67*	Y
J**	½" NPT Female Conduit with Terminal	-40 to +100	-40 to +212	67*	Y

*Note: Designed to be NEMA Type 4X/IP67 when properly installed with conduit fitting.

**Note: Option J is supplied with an M20 male to 1/2" NPT female conduit thread adaptor.

Electrical Connector

Connector			Function			
Option Code			4 to 20 mA	Voltage (3-wire)	Voltage (4-wire)	mV
5800	5 8	Red	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		Yellow	-	+ve Output	+ve Output	+ve Output
		Brown	-	-	-ve Output	-ve Output
		Black	-ve Supply	0V Common	-ve Supply	-ve Supply
		Orange	-	-	-	Shunt Cal
		Green	Case	Case	Case	Case
		Screen	-	-	-	-
5900	B J	I/P+	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		O/P+	-	+ve Output	+ve Output	+ve Output
		O/P-	-	-	-ve Output	-ve Output
		I/P-	-ve Supply	0V Common	-ve Supply	-ve Supply

CE Conformity

Pressure Equipment Directive 97/23/EC

ATEX 94/9/EC (Optional)

EMC Directive 2004/108/EC

BS EN 61000-6-1: 2007	Susceptibility - Light Industrial
BS EN 61000-6-2: 2005	Susceptibility - Heavy Industrial (except mV versions)
BS EN 61000-6-3: 2007	Emissions - Light Industrial
BS EN 61000-6-4: 2007	Emissions - Heavy Industrial
BS EN 61326-1: 2006	Electrical Equipment for Measurement, Control and Laboratory Use
BS EN 61326-2-3: 2006	Particular requirements for pressure transducers

Hazardous Area Approvals (optional)

ATEX/IECEx flameproof or dust ignition protection by enclosure

UNIK 5800

Ex d IIC T6 Gb (-40°C ≤ Ta ≤ +63°C)

Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +63°C)

Per certificate nos. Baseefa 12ATEX0047X & IECEx BAS 12.0075X (pending)

UNIK 5900

Ex d IIC T* Gb

Ex tb IIIC T* Db

T6/T85°C (-40°C ≤ Ta ≤ +70°C)

T5/T100°C (-40°C ≤ Ta ≤ +80°C)

T4/T135°C (-40°C ≤ Ta ≤ +100°C)

Per certificate nos. Baseefa 12ATEX0046X & IECEx BAS 12.0074X (pending)

Ordering Information

See the online configuration tool at www.unik5000.com

(1) Select model number

Main Product Variant

PMP Amplified Pressure Transducer

PDCR mV Pressure Transducer

PTX 4-20 mA Pressure Transmitter

Product Series

5 UNIK 5000

Diameter and Material

8 25mm Stainless Steel 316L Male Conduit

9 60mm Stainless Steel 316L Female Conduit with Terminal Compartment

Electrical Connector

5 M20 Male Conduit with Polyurethane Cable (5800 only)

8 1/2" NPT Male Conduit with Polyurethane Cable (5800 only)

B M20 Female Conduit with Terminal Compartment (5900 only)

J 1/2 " NPT Female Conduit with Terminal Compartment (5900 only)

Electronics Option

0 mV Passive 4-wire (PDCR) **Note 1**

1 mV Linearised 4-wire (PDCR)

2 4 to 20 mA 2-wire (PTX)

3 0 to 5 V 4-wire (PMP)

4 0 to 5 V 3-wire (PMP)

5 1 to 6 V 3-wire (PMP)

6 0 to 10 V 4-wire (PMP)

Compensated Temperature Range

TA -10 to +50 °C (14 to +122 °F)

TB -20 to +80 °C (-4 to +176 °F)

TC -40 to +80 °C (-40 to +176 °F)

Accuracy

A1 Industrial

A2 Improved

A3 Premium

Calibration

CA Zero/Span Data

CB Room Temperature

CC Full Thermal

Hazardous Area Approval

H0 None

H3 IECEx/ATEX Protected by Enclosure Group IIIC

H4 IECEx/ATEX Flameproof Group IIC

Pressure Connector

PA G1/4 Female **Note 2**

PB G1/4 Male Flat End

PC G1/4 Male 60 degree Int Cone

PD G1/8 Male 60 degree Int Cone

PE 1/4 NPT Female **Note 2**

PF 1/4 NPT Male

PG 1/8 NPT Male

PH M20x1.5

PJ M14x1.5 60° Internal Cone

PK M12x1 Internal Cone

PL 7/16-20 UNJF Male 74° External Cone

PM G1/2 Female

PN G1/2 Male **Note 2**

PP 1/2 NPT Female

PQ G1/4 Quick Connect

PR 1/2 NPT Male **Note 2**

PS 1/4 Swagelok Bulkhead

PT G1/4 Male Flat Long

PU 7/16-20 UNF Long 37 degree flare tip

PV 7/16-20 UNF Female

PW Depth cone (G 1/4 Female open face)

PX 7/16-20 UNF Male Short Flat

PY 3/8-24 UNJF

PZ M10 x 1 80° Int Cone

RA VCR Female

RB G1/4 Male Flat with Snubber

RC G1/4 Male Flat with Cross Bore Protection

RD M12 x 1.0 74 degree External Cone

RE Quick Release Male

RF VCR Male

RM G1/2 Female Long Version

RN G1/2 Male Long Version

RP 1/2 NPT Female Long Version

RR 1/2 NPT Male Long Version

5800

5900

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PTX

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TA

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A2

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CB

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H0

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PA

Typical Model Number

Ordering Notes

Note 1 Premium Accuracy is not available on this version

Note 2 Select one of these pressure connectors for pressure ranges over 50 bar (5800 only)

2) State pressure range and units: e.g. 0 to 10 bar, -5 to + 100 psi

Unit options are:

Symbol	Description
bar	bar
mbar	millibar
psi	pounds/sq. inch
Pa	Pascal
hPa	hectoPascal
kPa	kiloPascal
MPa	MegaPascal
mmH ₂ O	mm water
cmH ₂ O	cm water
mH ₂ O	metres water
inH ₂ O	inches water
ftH ₂ O	feet water
mmHg	mm mercury
inHg	inches mercury
kgf/cm ²	kg force/sq. cm
atm	atmosphere
Torr	torr

3) State Pressure reference: e.g. gauge

Reference options are:

gauge
absolute
sealed gauge

4) State cable lengths and units: Integer values only, e.g. 1m cable, 8 ft, minimum length 1 m (3 ft) cable
(only required on certain electrical connectors), Maximum cable length 190 m (570 ft)**Typical order examples:**

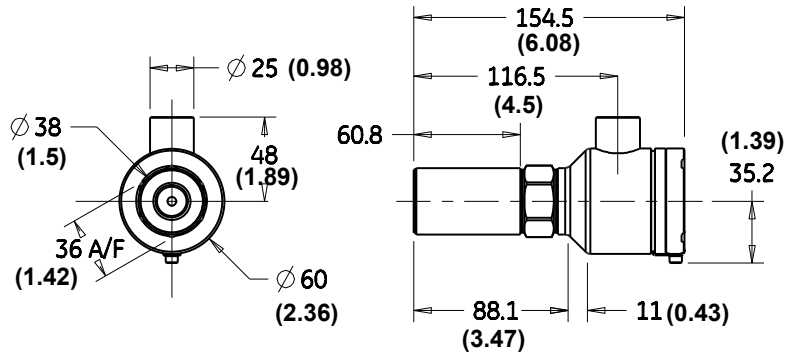
PTX5882-TB-A2-CA-H3-PA, 0 to 10 bar gauge, 3 m cable

PMP59B6-TC-A3-CC-H4-PM, -15 to 75 psi gauge

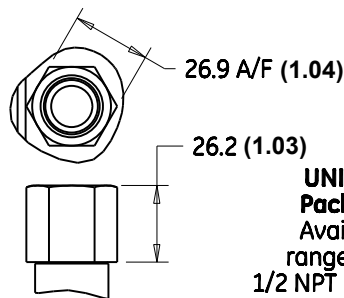
PDCR5881-TB-A1-CB-H0-PN, 0 to 100 bar sealed gauge, 6 ft. cable

UNIK 5900 Mechanical Drawings

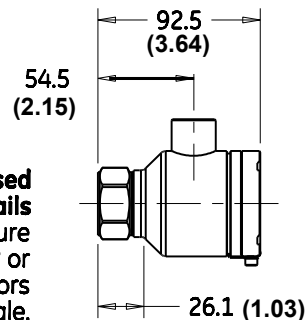
**UNIK 5900 Bracket
Compatible Outline Details**
Available for all pressure
ranges and either G1/2 or
1/2 NPT pressure connectors
in Male or Female.



**1/2 NPT Conduit
Adaptor**
Use to adapt the
standard M20 x 1.5
conduit connection.

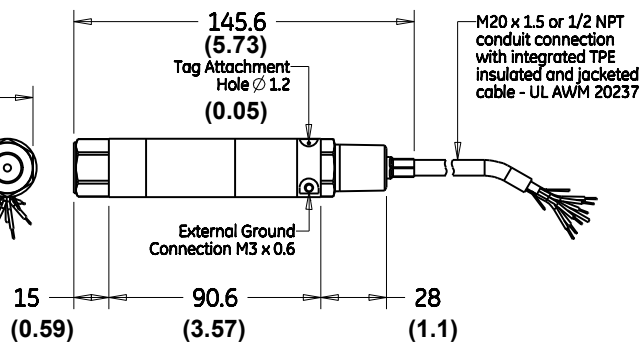
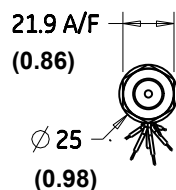


**UNIK 5900 Miniaturised
Package Outline Details**
Available for all pressure
ranges and either G1/2 or
1/2 NPT pressure connectors
in Male or Female.



UNIK 5800 Mechanical Drawings

**UNIK 5800 High Pressure
Construction Outline Details**
Available for pressure ranges
greater than 50 bar and
G1/4 or 1/4 NPT female, or
G1/2 or 1/2 NPT male
pressure connectors.



**UNIK 5800 Low Pressure
Construction Outline Details**
Available for pressure ranges
less than or equal to 50 bar
and can be configured for low
and medium pressure UNIK 5000
Series pressure connectors.

Note: Dimensions shown for
G1/4 and 1/4 NPT Female
pressure connectors only.
Refer to main document for
list of pressure connector
options - orientation not
critical.

