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. Intrinsic safety options are also available. 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 ±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 x 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).

Shunt Calibration (5800 only)
Shunt calibration provides a customer accessible connection which, when applied, causes a shift in output of 80% FS in order to simulate applied pressure. It is fitted to the mV version as standard. Shunt calibration is activated by connecting Shunt Cal to -ve Supply.

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 (0-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 °C	Max Operating temp range °F	IP rating	Zero span Adjust
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.*
Note: Hazardous area approved versions may be restricted to a reduced maximum operating temperature range – see Hazardous Area Approvals.

Electrical Connector

Connector	Option Code		Function: 4 to 20 mA	Function: Voltage (3-wire)	Function: Voltage (4-wire)	Function: mV
5800	5 8	Red	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		Yellow/ White	-	+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 50121-3-2: 2006	Railway applications – EMC: Rolling Stock – Apparatus (mA versions only)*
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

* Compliance with BS EN 50121-3-2: 2006 for applications where:

- the sensor is not connected to battery referenced ports (except at the output of energy sources) or auxiliary a.c. power input ports (rated voltage <= 400 Vrms).
- the sensor is not mounted in 'passenger compartments, driver's cab or external to the rolling stock (roof, underframe) to allow for the more prevalent use of mobile transmitters'.

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 12ATEX0075X & IECEx BAS 12.0047X

UNIK 5900
Ex d IIC T* Gb
Ex tb IIIC T*°C 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 12ATEX0074X & IECEx BAS 12.0046X

ATEX/IECEx intrinsic safety

UNIK 5800 & 5900
Ex ia IIC T5 Ga (-40°C <= Ta <= +80°C)
Ex ia I Ma (-40°C <= Ta <= +80°C)
Per certificate nos. Baseefa 10ATEX0204X & IECEx BAS 10.0103X

FM Approvals (Canada & United States) explosionproof/flameproof and/or dust ignition proof by enclosure

UNIK 5800
XP CL I DIV 1 GP ABCD T6 (-40°C <= Ta <= +63°C)
CL I ZN 1 AEx/Ex d IIC T6 (-40°C <= Ta <= +63°C)
CL II, III DIV 1 GP EFG T6/T85°C (-40°C <= Ta <= +63°C)
ZN 21 AEx tb IIIC T85°C (-40°C <= Ta <= +63°C)
Single Seal
Per FM Approvals certificate nos. 3042028 (United States) and 3042028C (Canada)
Note: Model 585#, using a metric electrical conduit thread, is not permitted for installation in 'Divisions' classified installations in Canada.

UNIK 5900
XP CL I DIV 1 GP ABCD T*
CL I ZN 1 AEx/Ex d IIC T*
CL II, III DIV 1 GP EFG T*/T*°C
ZN 21 AEx tb IIIC T*°C
T6/T85°C (-40°C <= Ta <= +70°C)
T5/T100°C (-40°C <= Ta <= +80°C)
T4/T135°C (-40°C <= Ta <= +100°C)
Single Seal
Per FM Approvals certificate nos. 3042028 (United States) and 3042028C (Canada)

Note: Model 59B#, using a metric electrical conduit thread, is not permitted for installation in 'Divisions' classified installations in Canada.
Model 59J#, using a metric electrical conduit thread and supplied with a metric to NPT thread adaptor, must be installed with the adaptor fitted.

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
H1 IECEx/ATEX Intrinsically Safe 'ia' Group IIC
H2 IECEx/ATEX Intrinsically Safe 'ia' Group I
H3 IECEx/ATEX Protected by Enclosure Group IIIC
H4 IECEx/ATEX Flameproof Group IIC
H7 C & US Dust Ignition Proof, Groups IIIC/EFG
H8 C & US Flameproof/Explosion Proof, Groups IIC/ABCD
HA IECEx/ATEX Intrinsically Safe 'ia' Groups I/IIC [H1 + H2]

Pressure Connector		5800	5900
PA	G1/4 Female **Note 2**	x	
PB	G1/4 Male Flat End	x	
PC	G1/4 Male 60 degree Int Cone	x	
PD	G1/8 Male 60 degree Int Cone	x	
PE	1/4 NPT Female **Note 2**	x	
PF	1/4 NPT Male	x	
PG	1/8 NPT Male	x	
PH	M20x1.5	x	
PJ	M14x1.5 60° Internal Cone	x	
PK	M12x1 Internal Cone	x	
PL	7/16-20 UNJF Male 74° External Cone	x	
PM	G1/2 Female		x
PN	G1/2 Male **Note 2**	x	x
PP	1/2 NPT Female		x
PQ	G1/4 Quick Connect	x	
PR	1/2 NPT Male **Note 2**	x	x
PS	1/4 Swagelok Bulkhead	x	
PT	G1/4 Male Flat Long	x	
PU	7/16-20 UNF Long 37 degree flare tip	x	
PV	7/16-20 UNF Female	x	
PX	7/16-20 UNF Male Short Flat	x	
PY	3/8-24 UNJF	x	
PZ	M10 x 1 80° Int Cone	x	
RA	VCR Female	x	
RB	G1/4 Male Flat with Snubber	x	
RC	G1/4 Male Flat with Cross Bore Protection	x	
RD	M12 x 1.0 74 degree External Cone	x	
RE	Quick Release Male	x	
RF	VCR Male	x	
RM	G1/2 Female Long Version		x
RN	G1/2 Male Long Version		x
RP	1/2 NPT Female Long Version		x
RR	1/2 NPT Male Long Version		x

PTX 5 8 5 2 - TA - A2 - CB - H0 - 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_2O	mm water
cmH_2O	cm water
mH_2O	metres water
inH_2O	inches water
ftH_2O	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

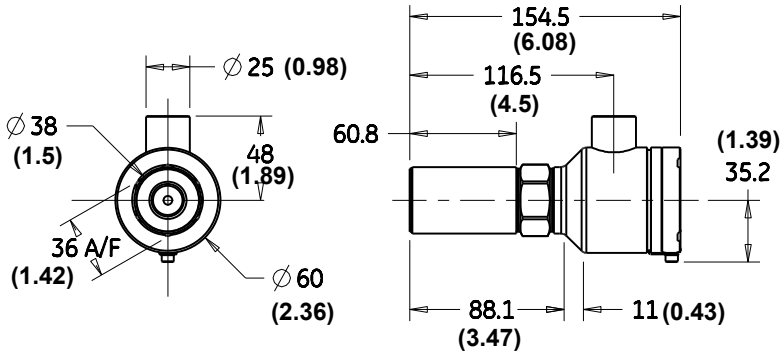
4) State cable lengths and units: Integer values only, e.g. 1m cable, 8 ft, minimum length 1 m (3 ft) cable (only required on certain electrical connectors), Maximum cable length 100 m (300 ft)

Typical order examples:

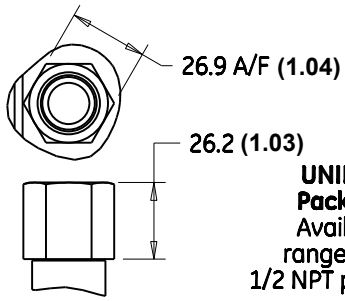
PTX5882-TB-A2-CA-H3-PA, 0 to 10 bar gauge, 3 m cable
PMP59B6-TC-A3-CC-H4-PM, -15 to 75 psi gauge
PDCR5881-TB-A1-CB-H0-PN, 0 to 100 bar sealed gauge, 6 ft. cable

UNIK 5900 Mechanical Drawings

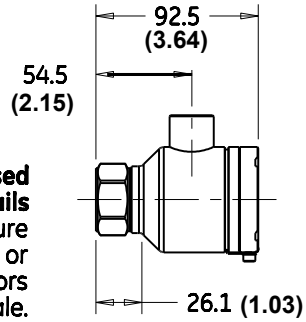
UNIK 5900 Bracket Compatible Outline Details
Available for all pressure ranges and either G1/2 or 1/2 NPT pressure connectors in Male or Female.



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.

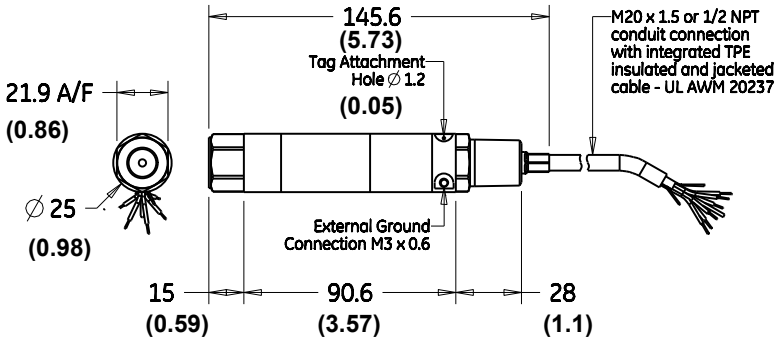


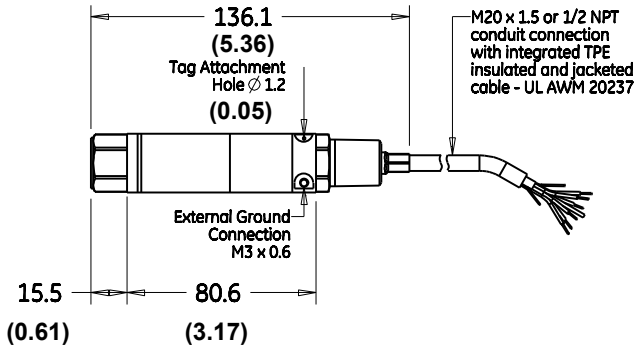
UNIK 5800 Mechanical Drawings

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.





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