GE
Measurement & Control Solutions

UNIK 5000

Pressure Sensing Platform

The UNIK 5000 is a high performance configurable solution to pressure measurement. The use of Druck silicon technology and analogue circuitry enables best in class performance for stability, low power and frequency response. The use of modular design and lean manufacturing techniques allow users to design the product required to their unique application requirements and for them to be delivered inside standard product lead times.

Features

- Ranges from 70 mbar (1 psi) to 700 bar (10,000 psi)
- Accuracy to ±0.04% Full Scale (FS) Best Straight Line (BSL)
- Stainless Steel construction
- Hazardous Area certifications (Pending)
- mV, mA, voltage and configurable voltage outputs
- Multiple electrical connector options
- Multiple pressure connector options
- Operating temperature ranges to –55 to 125°C (-67 to 257°F)
- Frequency response to 5 kHz
- High reliability
- High stability
- High over pressure capability

GE imagination at work

5000 Specifications

Measurement

Operating Pressure Ranges

Gauge ranges

Any zero based range between 70 mbar and 70 bar (1 to 1,000 psi) (values in psi are approximate)

Sealed Gauge Ranges

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

Absolute Ranges

Any zero based range between 350 mbar and 700 bar (5 to 10,000 psi)

Differential Ranges

Wet/Dry

Uni-directional or bi-directional 70 mbar to 35 bar (1 to 500 psi)

Wet/Wet

Uni-directional or bi-directional 350 mbar to 35 bar (5 to 500 psi)

Line pressure: 70 bar max (1000 psi)

Barometric Ranges

Barometric ranges are available with a minimum span of 350 mbar (5.1 psi)

Non Zero Based Ranges

Non zero based ranges are available. Please contact GE Sensing to discuss your requirements

Over Pressure

- 10 × FS for ranges up to 150 mbar (2 psi)
- 6 × FS for ranges up to 700 mbar (10 psi)
- 2 × FS for barometric ranges
- 4 × FS for all other ranges (up to 200 bar for ranges ≤70 bar and up to 1200 bar for ranges >70 bar)

For differential versions the negative side must not exceed the positive side by more than:

- 6 × FS for ranges up to 150 mbar (2 psi)
- 4 × FS for ranges up to 700 mbar (10 psi)
- 2 × FS for all other ranges up to a maximum of 15 bar (200 psi)

Containment Pressure

Ranges up to 150 mbar (2 psi) gauge 10 x FS
Ranges up to 70 bar (1000 psi) gauge 6 x FS
(200 bar (3000 psi) max)
Ranges up to 70 bar (1000 psi) absolute
200 bar (3000 psi)
Ranges above 70 bar (1000 psi)
1200 bar (17500 psi)

Differential (-ve port) must not exceed positive port by more than 6 × FS (15 bar (200 psi) maximum)

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 32	4-20 mA	4-20
3	0 to 5 V 4-wire	7 to 32	0 to 5 V	<3
4	0 to 5 V 3-wire	7 to 32	0 to 5 V*	<3
5	1 to 6 V 3-wire	7 to 32	1 to 6 V	<3
6	0 to 10 V 4-wire	12 to 32	0 to 10 V	<3
7	0.5 to 4.5 V Ratiometric	5.0 ± 0.5	0.5 to 4.5 V	<3
8	Isolated/Configurable	7 to 36	See below	See below

^ with a 10 volt supply mV output sensors give 100 mV over the full scale pressure.

- Output is ratiometric to the supply voltage
- Output reduces pro-rata below 350 mbar (5 psi)

*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

Isolated/Configurable (Option 8)

Any pressure signal output configurations will be available, subject to the following limitations:

- Minimum span: 2 V
- Maximum span: 20 V
- Output limits: ±10 V
- Maximum zero offset: ≤ span

Reverse output response to pressure is available.
The output will continue to respond to 110% FS. i.e. if a 0 to 10 V output is specified, the output will continue to increase proportionally to applied pressure until at least 11 V.
Current consumption is <20 mA @ 7 Vdc supply, reducing to <5 mA @ 32 Vdc supply. On startup <100 mA drawn for 10 ms typically.

Examples

Allowed	Not Allowed
-10 to 0 V	0 to 12 V (outside ±10 V limits)
0 to 5 V	6 to 10 V (offset too big)
-5 to +5 V	0 to 0.5 V (span too small)
-2 to 10 V	
1 to 6 V	
10 to 0 V	

Power-Up Time

- mV, Voltage and current versions: 10 ms
- Isolated/configurable version: 500 ms

Shunt Calibration

Shunt Calibration provides a customer accessible connection which, when connected to -ve supply (mV) or -ve signal (isolated configurable), cause a shift in output of 80% FS in order to simulate applied pressure.
It is fitted to the mV and Isolated/Configurable versions as standard. It is not available with DIN or M12x1 electrical connectors (options 7 and G).

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

≤ 70 bar

Industrial:	±0.2% FS BSL
Improved:	±0.2% FS BSL

> 70 bar

Industrial:	±0.5% FS BSL
Improved:	±0.5% FS BSL

Zero Offset and Span Setting

Voltage and Current Outputs

Adjustable electrical connector options allow access to potentiometers that give at least ±5% FS adjustment (see Electrical Connector section)
Factory set to:

Industrial:	±0.5% FS
Improved:	±0.2% FS
Premium:	±0.2% FS

mV Outputs

All specifications ±3 mV

Long Term Stability

±0.05% FS typical (±0.1% FS maximum) per year increasing pro-rata for pressure ranges below 350 mbar

Temperature Effects

Four 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
-40 to +125 °C (-40 to 257 °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
-40 to +125 °C (-40 to 257 °F):	±1.5% FS TEB

Temperature effects increase pro-rata for pressure ranges below 350 mbar (5 psi) and are doubled for barometric ranges.

Physical Specifications

Environmental Protection

- See Electrical Connector section
- Hyperbaric Pressure: 20 bar (300 psi) maximum

Operating Temperature Range

See Electrical Connector section

Pressure Media

Fluids compatible with Stainless Steel 316L and Hastelloy C276.
For the wet/dry differential version, negative pressure port: fluid compatible with stainless steel 316L, pyrex, silicone and structural adhesive.

Pressure Connector

Available options are

- G1/4 female*
- G1/4 male flat
- G1/4 male 60° internal cone
- G1/8 male 60° internal cone
- 1/4 NPT female*
- 1/4 NPT male
- 1/8 NPT male
- M20 x 1.5 male
- M14 x 1.5 60° internal cone
- M12 x 1 60° internal cone
- 7/16-20 UNF male
- G1/2 Male via Adaptor*
- 1/2 NPT Male via Adaptor*
- Depth Cone (G1/4 female)

Choose connectors marked * for pressure ranges over 70 bar.
Other pressure connectors may be available.
Contact GE Sensing to discuss your requirement

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
0	No Connector	-55 to +125	-67 to +257	-	Y
1	Cable Gland	-40 to +80	-40 to +176	65	N
2	Raychem Cable	-55 to +125	-67 to +257	65	N
3	Polyurethane Depth	-40 to +80	-40 to +176	68	N
4	Hytrel Depth	-40 to +80	-40 to +176	68	N
6	Bayonet MIL-C-26482	-55 to +125	-67 to +257	67	N
7	DIN 43650 Demountable	-40 to +80	-40 to +176	65	Y
A	Bayonet MIL-C-26482 Demountable	-55 to +125	-67 to +257	65	Y
C	1/2 NPT Conduit	-40 to +80	-40 to +176	67	N
G	M12x1 4pin	-55 to +125	-67 to +257	67	N

Electrical Connector

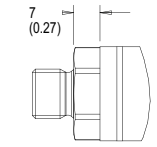
Connector Type	Option code		Electronics Option				
			4 to 20 mA	Voltage (3-wire)	Voltage (4-wire)	Isolated/Configurable	mV
Bayonet	6, A	A	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		B	-ve Supply	+ve Output	+ve Output	+ve Output	+ve Output
		C	-	-	-ve Output	-ve Output	-ve Output
		D		0V common	-ve Supply	-ve Supply	-ve Supply
		E	-	-	-	Shunt Cal	Shunt Cal
		F	-	-	-	-	-
DIN	7	1	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		2	-ve Supply	0V common	-ve Supply	-ve Supply	-ve Supply
		3	-	+ve Output	+ve Output	+ve Output	+ve Output
		E	Case	Case	-ve Output	-ve Output	-ve Output
Cable	1, 3, 4, C	Red	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		Yellow	-	+ve Output	+ve Output	+ve Output	+ve Output
		Blue	-	-	-ve Output	-ve Output	-ve Output
		White	-ve Supply	0V common	-ve Supply	-ve Supply	-ve Supply
		Orange	-	-	-	Shunt Cal	Shunt Cal
		Black	-	-	-	-	-
		Screen	-	-	-	-	-
Raychem Cable	2	Red	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		White	-	+ve Output	+ve Output	+ve Output	+ve Output
		Green	-	-	-ve Output	-ve Output	-ve Output
		Blue	-ve Supply	0V common	-ve Supply	-ve Supply	-ve Supply
		Black	-	-	-	Shunt Cal	Shunt Cal
		Screen	-	-	-	-	-
Molex	0	1 Red	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		2 Yellow	-	+ve Output	+ve Output	+ve Output	+ve Output
		3 Green	-	-	-ve Output	-ve Output	-ve Output
		4 Blue	-ve Supply	0V common	-ve Supply	-ve Supply	-ve Supply
		5 Orange	-	-	-	Shunt Cal	Shunt Cal
		6 Black	-	-	-	-	-
M12 X 1 4-Pin	G	1	+ve Supply	+ve Supply	+ve Supply	+ve Supply	+ve Supply
		2		+ve Output	+ve Output	+ve Output	+ve Output
		3	-ve Supply	0V common	-ve Supply	-ve Supply	-ve Supply
		4	Case	Case	-ve Output	-ve Output	-ve Output

Certification

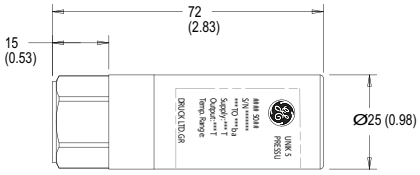
- CE Marked
- RoHS
- EMC Standards

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 - EMC requirements

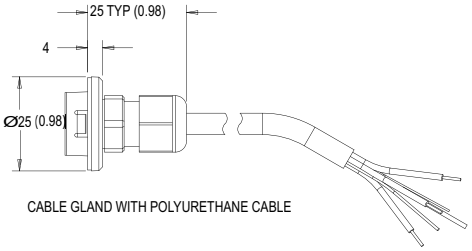
Mechanical Drawings



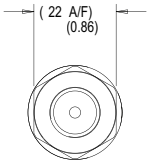
MALE PRESSURE CONNECTION

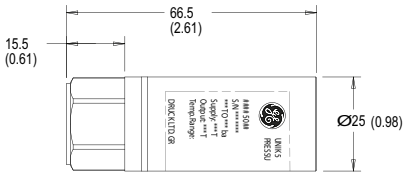


HIGH PRESSURE
CONSTRUCTION

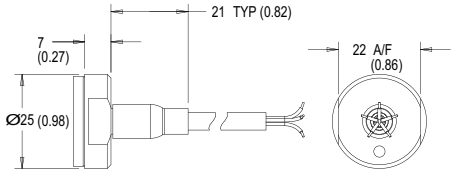


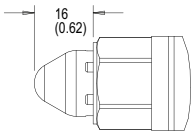
CABLE GLAND WITH POLYURETHANE CABLE



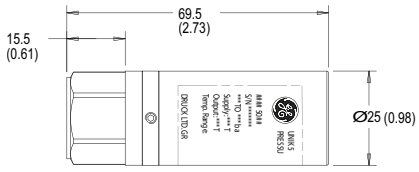


MEDIUM PRESSURE
CONSTRUCTION

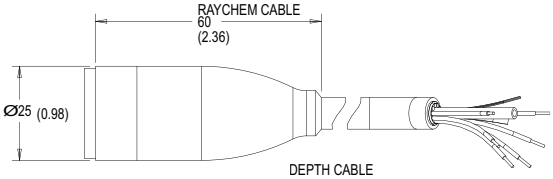




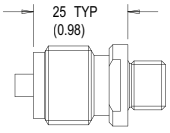
DEPTH CONE
PRESSURE ADAPTOR



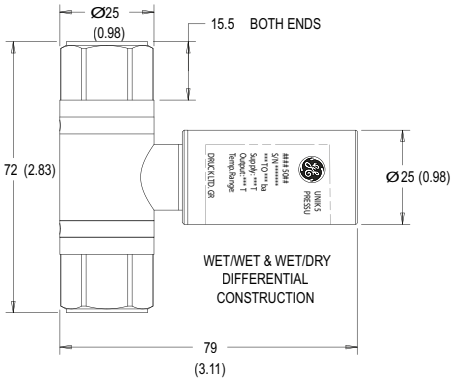
LOW PRESSURE
CONSTRUCTION



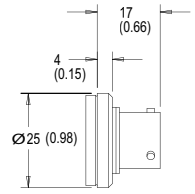
DEPTH CABLE



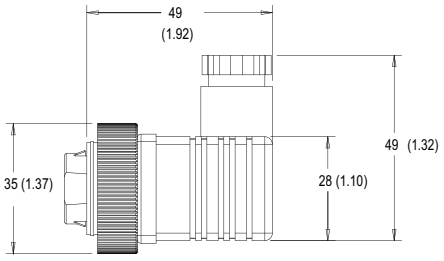
OPTIONAL WELDED
PRESSURE ADAPTOR



WET/WET & WET/DRY
DIFFERENTIAL
CONSTRUCTION



BAYONET MIL-C-26482
NON-DEMOUNTABLE



DIN 43650 DEMOUNTABLE

NOTES:

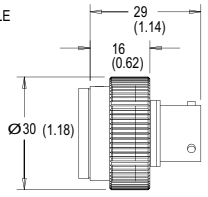
[1] DIMENSIONS SHOWN ARE FOR STANDARD LENGTH PRODUCTS WITH THE FOLLOWING ELECTRICAL OUTPUT OPTIONS:
- mV LINEARISED (PDCR)
- 4 TO 20 mA (PTX)
- STANDARD VOLTAGE OPTIONS (PMP)

FOR mV PASSIVE (PDCR) - SUBTRACT 10mm (0.39 in)
FOR ELECTRICALLY ISOLATED VOLTAGE (PMP) - ADD 15mm (0.59 in)

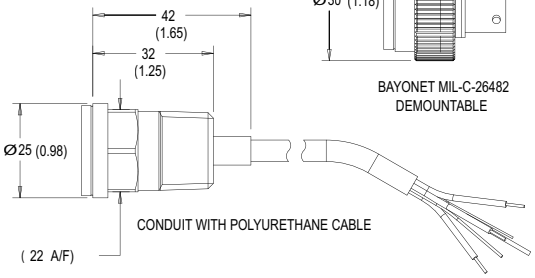
[2] REFER TO PAGE 3 FOR LIST OF PRESSURE CONNECTION OPTIONS (ORIENTATION NOT CRITICAL)

[3] ALL DIMENSIONS ARE IN MILLIMETERS (INCHES IN PARENTHESES)

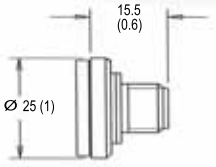
(4) HIGH PRESSURE IS >70 BAR (1000 PSI)
MEDIUM PRESSURE
INDUSTRIAL ACCURACY >1 BAR ≤ 70 BAR (1000 PSI)
IMPROVED/PREMIUM ACCURACY >2 BAR ≤ 70 BAR (1000 PSI)
LOW PRESSURE
INDUSTRIAL ACCURACY ≤ 1 BAR (15 PSI)
IMPROVED/PREMIUM ACCURACY ≤ 2 BAR (29 PSI)



BAYONET MIL-C-26482
DEMOUNTABLE



CONDUIT WITH POLYURETHANE CABLE



M12 x 1 4-PIN

Ordering Information

(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

0 25mm Stainless Steel

Electrical Connector

0 No Electrical Connector
1 Cable Gland (Polyurethane Cable)
2 Raychem Cable
3 Polyurethane Cable (Depth)
4 Hytrel Cable (Depth)
6 MIL-C-26482 (6-pin Shell Size 10) (Mating connector not supplied)
7 DIN 43650 Demountable (Mating connector supplied)
A Demountable MIL-C-26482 (6-pin Shell Size 10) (Mating connector not supplied)
C 1/2" NPT Conduit (Polyurethane cable)
G M12 x 1 4-pin male (Mating connector not supplied)

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)
7 0.5 to 4.5 V Ratiometric 3-wire (PMP)
8 Isolated/Configurable 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)
TD -40 to +125 °C (-40 to 257 °F) **Note 2**

Accuracy

A1 Industrial
A2 Improved
A3 Premium

Calibration

CA Zero/Span Data
CB Room Temperature
CC Full Thermal

Hazardous Area Approval

H0 None

Pressure Connector

PA G1/4 Female **Note 3**
PB G1/4 Male Flat
PC G1/4 Male 60 degree Int Cone
PD G1/8 Male 60 degree Int Cone
PE 1/4 NPT Female **Note 3**
PF 1/4 NPT Male
PG 1/8 NPT Male
PH M20x1.5
PJ M14x1.5 60° Cone
PK M12x1 Internal Cone
PL 7/16 UNF Male
PN G1/2 Male via Adaptor **Note 3**
PR 1/2 NPT Male via adaptor **Note 3**
PS G 1/4 Swagelok Bulkhead
PT G1/4 Male Flat Long
PU 7/16-20 UNF Long 37 degree flare tip
PV 7/16 UNF Female
PW Depth Cone (G1/4 Female)

PTX 5 0 7 2 - TA - A2 - CB - H0 - PA **Typical Model Number**

Ordering Notes

Note 1 Premium Accuracy is not available on this version
Note 2 Please ensure that the electrical connector selected is option 0, 2, 6, or A.
Note 3 Select one of these pressure connectors for pressure ranges over 70 bar

2) State pressure range and units: e.g. 0 to 10 bar, -5 to + 5 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
- barometric
- sealed gauge
- wet/dry differential
- wet/wet differential

4) State cable lengths and units: e.g. 1m cable, 8 ft cable (only required on certain electrical connectors)

5) Output option 8 only: State voltage output at minimum and maximum pressure: e.g. output –1 to 9 V

Typical order examples:

PTX5012-TB-A2-CA-H0-PA, 0 to 10 bar, gauge, 3 m cable
PMP5028-TD-A3-CC-H0-PE, -15 to 75 psi, gauge, 15ft cable, output voltage -1 to 5 volts
PDCR5071-TB-A1-CB-H0-PB, 0 to 100 bar, sealed gauge

Accessories

Mating connector for MIL-C-264821 (Electrical connector option 6 and A) under part number S-163-009

www.gesensinginspection.com

920-483E
(SDS0013)