



UNIK 5900 SIL

Flameproof/explosion-proof pressure sensing platform, SIL certified version

The UNIK 5900 is a compact and rugged version of the high performance UNIK 5000 pressure sensing platform with SIL certification. It also offers intrinsically safe, flameproof/explosion proof or dust ignition protection by enclosure capability as required. It provides a cost-effective alternative to pressure gauges and switches in process, as well as in oil and gas operations.

High quality

With over 40 years of pressure measurement experience, our field-proven Druck 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 quick and simple; each UNIK 5900 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 2 to 700 bar (30 to 10000 psi)
- Non-linearity, hysteresis and repeatability to $\pm 0.04\%$ Full Scale (FS) Best Straight Line (BSL)
- Stainless steel construction
- Integrated terminal compartment with long or short body
- Frequency response to 3.5 kHz
- Hazardous area certifications
- SIL certification. For non-SIL certified products, please refer to our standard UNIK 5900 datasheet, 920-582

UNIK 5900 SIL conformity specifications

Operating pressure ranges

Gauge ranges

Any zero based range from 2 to 50 bar (30 to 725 psi)

Sealed gauge ranges

Any zero based range from 10 to 700 bar (146 to 10000 psi)

Absolute ranges

Any zero based range from 2 to 700 bar (30 to 10000 psi)

Non-zero based ranges

Non-zero based ranges are available. Please contact Baker Hughes to discuss your requirements.

Over pressure

1.5 × FS

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:
200 bar (2900 psi) maximum

Ranges above 50 bar (725 psi) absolute:
1200 bar (17400 psi) maximum

Electrical specifications

Supply and output voltage

Supply : 7 to 28 Vdc (32 V maximum for non-hazardous area operation)

Output : 4 to 20 mA

Supply sensitivity

±0.005% FS/V

Power-up time

10 ms

Insulation resistance

>100 MΩ at 500 Vdc (approval option H0 only)

Isolation

500 Vac: Leakage ≤5 mA (approval options other than H0)

Performance specifications

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

Accuracy

Combined effects of non-linearity, hysteresis and repeatability:

Industrial: ±0.2% FS BSL

Improved: ±0.1% FS BSL

Premium: ±0.04% FS BSL

Temperature effects

Four compensated temperature ranges can be chosen:

Compensated temperature range	Industrial (%FS TEB)	Improved and premium (%FS TEB)
-40 to +125 °C	±2.25	±1.50
-40 to +80 °C	±2.25	±1.50
-20 to +80 °C	±1.50	±1.00
-10 to +50 °C	±0.75	±0.50

Zero and span setting

Zero and span potentiometers allow adjustment range of at least ±5% FS.

Factory set to:

Industrial: ±0.5% FS

Improved: ±0.2% FS

Premium: ±0.2% FS

Note: Adjusting zero or span may invalidate SIL compliance – refer to safety manual.

Long term stability

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

Safety accuracy

Safety accuracy includes non-linearity, hysteresis and repeatability, thermal error, zero/span setting accuracy and lifetime drift.

Compensated temperature range	Industrial (%FS)	Improved and premium (%FS)
-40 to +125 °C	4.45	3.00
-40 to +80 °C	4.45	3.00
-20 to +80 °C	3.70	2.50
-10 to +50 °C	2.95	2.00

Fault state output: ≤3.6mA or ≥ 21mA

Physical specifications

Environmental protection

See the electrical connector section

Operating temperature range

See the electrical connector section

Pressure media

- 0 – 200 bar: fluids compatible with stainless steel 316L and Hastelloy C276
- 201 – 500 bar: liquids and group 2 gases compatible with stainless steel 316L
- 501 – 700 bar: group 2 liquids and group 2 gases compatible with stainless steel 316L

Enclosure materials

Stainless steel (body), Viton (O-ring), PTFE (vent filter)

Pressure connector

See ordering information for available options

Electrical connector

Option code	Description	Max operating temp range ³		IP rating	Zero/span adjust
		°C	°F		
B	M20 female conduit with terminal compartment	-40 to +100	-40 to +212	66/67 ¹	Y
J ²	½ NPT female conduit with terminal compartment	-40 to +100	-40 to +212	66/67 ¹	Y

1. Designed to be enclosure Type 4X, IP66 and IP67 when properly installed with conduit fitting.
2. Option J is supplied with an M20 to ½” NPT female conduit thread adaptor.
3. Hazardous area approved versions may be restricted to a reduced maximum operating temperature range – see hazardous area approvals.

Electrical connections

Label	Function
I/P+	+ve Supply
O/P+	-
O/P-	-
I/P-	-ve Supply

Certification

CE conformity

- Pressure equipment directive 2014/68/EU – Sound engineering practice
- ATEX Directive 2014/34/EU (optional)
- EMC Directive 2014/30/EU
 - BS EN 61000-6-1: 2007 Susceptibility – Light industrial
 - BS EN 61000-6-2: 2005 Susceptibility – Heavy industrial
 - BS EN 61000-6-3: 2007+A1:2011 Emissions – Light industrial
 - BS EN 61000-6-4: 2007+A1:2011 Emissions – Heavy industrial
 - BS EN 61326-1: 2013 Electrical equipment for measurement, control and laboratory use
 - BS EN 61326-2-3: 2013 Particular requirements for pressure transducers
- RoHS Directive 2011/65/EU

SIL conformity

- Certificate number: 2103.2494
- Issued by: Method functional safety
- Assessed standard: SIL2 IEC 61508:2010 (Parts 1 & 2)
- Basis of certification:
Report 2103.03 v1 – Functional safety management, hardware requirements, hardware reliability
- Safety Manual I24M4659

Hazardous area approvals (optional)

ATEX/IECEx flameproof or dust ignition protection by enclosure

Ex d IIC T* Gb
Ex tb IIIC T*°C Db
T6/T85°C ($-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)
T5/T100°C ($-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)
T4/T135°C ($-40^{\circ}\text{C} \leq T_a \leq +100^{\circ}\text{C}$)
Per certificates Baseefa I2ATEX0074X & IECEx BAS 12.0046X

ATEX/IECEx intrinsic safety

Ex ia IIC T5 Ga ($-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)
Ex ia I Ma ($-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)
Per certificates Baseefa I0ATEX0204X & IECEx BAS 10.0103X

FM approvals (Canada and United States) explosion-proof/flameproof and/or dust ignition proof by enclosure

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 2I AEx tb IIIC T*°C
T6/T85°C ($-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)
T5/T100°C ($-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)
T4/T135°C ($-40^{\circ}\text{C} \leq T_a \leq +100^{\circ}\text{C}$)
Single Seal ($-40^{\circ}\text{C} - +125^{\circ}\text{C}$)
Per FM approvals certificates FM16US0420X (United States) and FM16CA0193X (Canada)

Note: Model 59B2, using a metric electrical conduit thread, is not permitted for installation in 'Divisions' classified installations in Canada.

Note: Model 59J2, using a metric electrical conduit thread and supplied with a metric to NPT thread adaptor, must be installed with the adaptor fitted.

Ordering information

1) Select model number

Main Product Variant	
PTX	4-20 mA Pressure Transmitter
Product Series	
5	UNIK 5000
Diameter and Material	
9	60mm Stainless Steel 316L Female Conduit with Terminal Compartment
Electrical Connector	
B	M20 Female Conduit with Terminal Compartment
J	1/2" NPT Female Conduit with Terminal Compartment
Electronics Option	
2	4 to 20 mA 2-wire (PTX)
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)
Accuracy	
A1	Industrial
A2	Improved
A3	Premium
Calibration	
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	FM (C & US) Dust Ignition Proof, Groups IIIC/EFG
H8	FM (C & US) Flameproof/Explosion Proof, Groups IIC/ABCD
HA	IECEX/ATEX Intrinsically Safe 'ia' Groups I/IIC [H1 + H2]
HT	IECEX/ATEX/FM (C & US) Flameproof/Explosion Proof Groups IIC/ABCD [H4 + H8]
Pressure Connector	
PM	G1/2 Female
PN	G1/2 Male
PP	1/2 NPT Female
PR	1/2 NPT 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
125M0202 SIL Certification	
Typical Model Number	

PTX	5	9	J	2	-	TA	-	A1	-	CC	-	H1	-	PN	-	125M0202	Typical Model Number
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2) State pressure range and units: e.g., 0 to 10 bar, -5 to + 100 psi

Unit options are:

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

3) State pressure reference e.g., gauge

Reference options are:

- gauge
- absolute
- sealed gauge

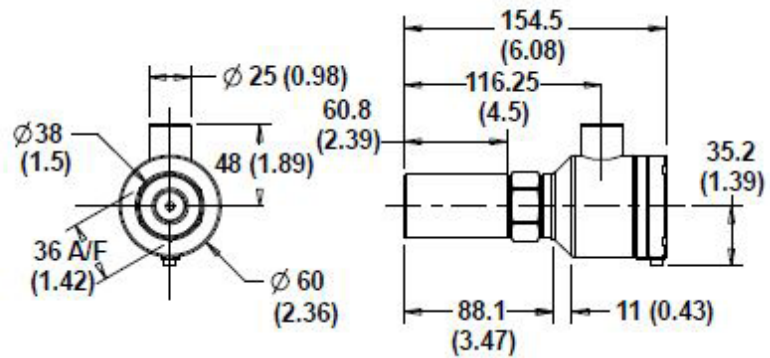
Typical order examples

PTX59J2-TA-A1-CC-H1-PN-125M0202, 0 to 5 bar absolute

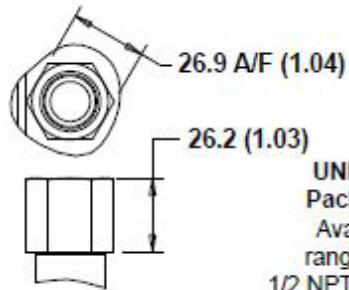
PTX59B2-TB-A2-CC-H0-PR-125M0202, 0 to 10 MPa gauge

Mechanical drawings

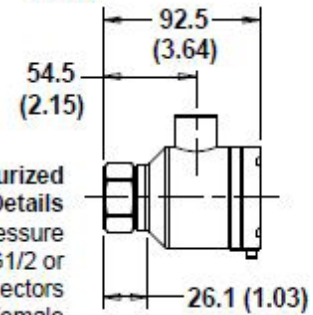
**UNIK 5900 Bracket
Compatible Outline Details**
Available for all pressure
ranges and either G1/2 or
1/2 NPT pressure connectors
in Male or Female.



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



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



Note: All dimensions in mm (inches)