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 and oil and gas industry applications.

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 ±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 Druck 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 124M4659

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°C ≤ Ta ≤ +70°C)
T5/T100°C (-40°C ≤ Ta ≤ +80°C)
T4/T135°C (-40°C ≤ Ta ≤ +100°C)
Per certificates Baseefa 12ATEX0074X & IECEx BAS 12.0046X

ATEX/IECEx intrinsic safety
Ex ia IIC T5 Ga (-40°C ≤ Ta ≤ +80°C)
Ex ia I Ma (-40°C ≤ Ta ≤ +80°C)
Per certificates Baseefa 10ATEX0204X & 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 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 (-40°C - +125°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	
PTX	**5**	**9**	**J**	**TA**	**A1**	**CC**	**H1**	**PN**		**125M0202**	**Typical Model Number**

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

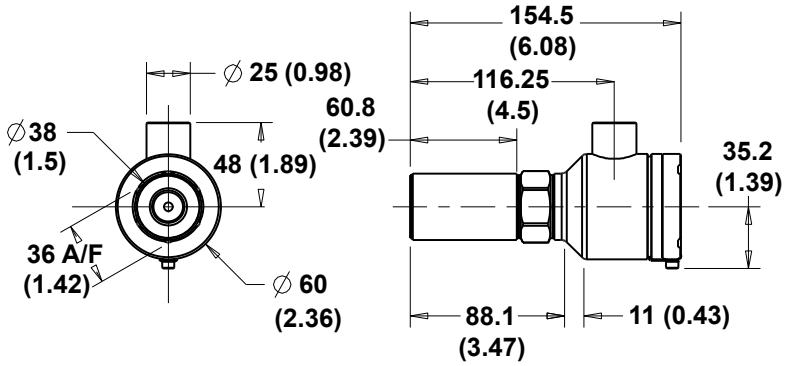
Typical order examples

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

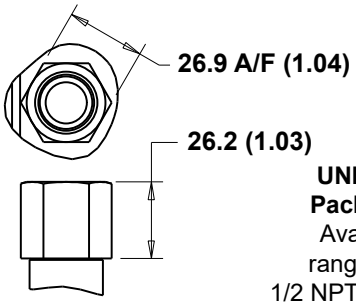
PTX59B2-TB-A2-CC-H0-PR-125M0202, 0 to 10 MPa gauge

Mechanical drawings

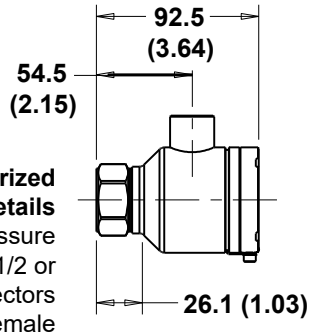
UNIK 5900 Bracket Compatible Outline Details
Available for all pressure ranges and either G1/2 or 1/2 NPT pressure connectors in Male or Female.



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)

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