

# UNIK 5600/5700

## Marine Certified Pressure Sensing Platform

The new UNIK 5600/5700 carries marine certification for most zones on-board ship, as well as Intrinsically Safe certifications. Marine approval means UNIK 5000 complies with International standards, regulations and Marine Law. The use of Druck silicon technology and analogue circuitry enables best in class performance for stability, low power and high frequency response. The platform enables you to build up your own sensor to match your precise needs. This high performance, configurable solution to pressure measurement employs modular design and lean manufacturing techniques to offer:

### High Quality

With 40 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.



### Features

- Ranges from 70 mbar (1 psi) to 700 bar (10,000 psi) (Depending on material option)
- Accuracy to  $\pm 0.04\%$  Full Scale (FS) Best Straight Line (BSL)
- Stainless Steel 316L and Titanium construction options
- Frequency response to 3.5 kHz
- High over pressure capability
- Intrinsically Safe Hazardous Area certification
- 4-20 mA output
- Multiple pressure connector options
- DIN 43650 or fully submersible electrical connection
- Operating temperature ranges from  $-40$  to  $80^{\circ}\text{C}$  ( $-40$  to  $176^{\circ}\text{F}$ )

# 5600/5700 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) (Titanium option limited to 70 bar)

#### Absolute Ranges

Any zero based range between 100 mbar and 700 bar (1.5 to 10,000 psi)  
(Titanium option limited to 70 bar)

#### Differential Ranges (Stainless Steel option only)

*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 (1,000 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 Druck 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 1,200 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 × FS

Ranges up to 70 bar (1,000 psi) gauge 6 × FS  
200 bar (2,900 psi) max

Ranges up to 70 bar (1,000 psi) absolute  
200 bar (2,900 psi)

Ranges above 70 bar (1,000 psi)  
1,200 bar (17,400 psi)

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

## Supply Voltage

7 to 32 Vdc (7 to 28 Vdc in hazardous area operation)

## Output

4-20 mA

## Power-Up Time

10 ms

## Insulation

- 500 Vdc: 100 MΩ
- 500 Vac: ≤ 5 mA leakage current

## Performance Specifications

There are two grades of performance specification: Improved and Premium

### Accuracy

Combined effects of non-linearity, hysteresis and repeatability:

Improved: ±0.1% FS BSL

Premium: ±0.04% FS BSL

*Note: For the barometric pressure range, accuracy is of span, not full scale.*

*Note: Accuracy is specified for each direction separately for bi-directional ranges.*

### Zero Offset and Span Setting

Demountable electrical connector allows access to potentiometers that give at least ±5% FS adjustment (DIN connector, Demountable Depth Cable only)

### Factory set to:

DIN Connector ±0.2% FS

Depth Cable ±1.0% FS

Demountable Depth Cable ±0.2% FS

### Long Term Stability

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

### Temperature Effects

-10 to +50 °C (14 to +122 °F): ±0.5% FS

Temperature error band (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

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

### Line Pressure Effects (Differential Version Only)

Zero shift: <±0.03% span/bar of line pressure

Span shift: <±0.03% span/bar of line pressure

Effects increase pro-rata for differential pressure ranges below 700 mbar (10 psi).

# Physical Specifications

## Environmental Protection

- See Electrical Connector section
- Hyperbaric Pressure:
  1. 20 bar (300 psi) maximum for Depth Cable
  2. 10 bar (150 psi) maximum for Demountable Depth Cable

## Operating Temperature Range

-40 to 80°C (-40 to 176°F)

DNV Approval Temperature Class

-25 to 70°C (-13 to 158°F)

## Pressure Media

### (Stainless Steel 316L Option)

Fluids compatible with Stainless Steel 316L and Hastelloy C276.

For the wet/dry differential version, negative pressure port: fluid compatible with stainless steel 316L, stainless steel 304, pyrex, silicon and structural adhesive.

### (Titanium Option)

Fluids compatible with Grade 2 and 4 Titanium.

## Enclosure Materials

Stainless steel or titanium (body – material option), glass filled nylon (DIN connector assembly) with rubber seals (nitrile o-rings and silicone gaskets). PTFE (depth cone, vent filter), PVDF (cable sheath and depth cone -- depth cable assembly), and TPE-U (cable sheath and depth cone -- depth cable assembly).

## Pressure Connector

Available options are

- G1/4 Female\*
- G1/4 Male Flat
- G1/2 Male via Adaptor\*
- 1/4 NPT Male
- 1/2 NPT Male via Adaptor\*
- M20 X 1.5 Male
- Depth Cone (G1/4 female open face)

Choose connectors marked \* for pressure ranges over 70 bar.

Other pressure connectors may be available.

Contact Druck to discuss your requirement.

## Electrical Connector

Code Number	Description	Max Operating temp range		IP rating	Zero span Adjust
		°C	°F		
7	DIN 43650 Form A Demountable	-40 to +80	-40 to +176	56	Y
N	Kynar Depth Cable	-40 to +80	-40 to +176	68	N
P	Demountable Kynar Cable	-40 to +80	-40 to +176	68	Y
U	TPE-U Depth Cable	-40 to +80	-40 to +176	68	N
V	Demountable TPE-U Cable	-40 to +80	-40 to +176	68	Y

## Wiring Details

Code Number	Connector Type	Electronics Option	
7	DIN 43650 Form A Demountable	1	+ve Supply
		2	-ve Supply
		3	-
		E	Case
N	Kynar Depth Cable	Red	+ve supply
		White	-ve supply
P	Demountable Kynar Depth Cable	Red	+ve supply
		White	-ve supply
U	TPE-U Depth Cable	Red	+ve supply
		White	-ve supply
V	Demountable TPE-U Depth Cable	Red	+ve supply
		White	-ve supply

## CE Conformity

RoHS 2011/65/EU

Pressure Equipment Directive 2014/68/EU

ATEX 2014/34/EU (Optional)

EN 60079-0: 2012+A11: 2013

EN 60079-11: 2007

EN 50303: 2000

EMC Directive 2014/30/EU

BS EN 61000-6-1: 2007

BS EN 61000-6-2: 2005

BS EN 61000-6-3: 2007+A1: 2011

BS EN 61000-6-4: 2007+A1: 2011

BS EN 61326-1: 2013

BS EN 61326-2-3: 2013

Susceptibility - Light Industrial

Susceptibility - Heavy Industrial

Emissions - Light Industrial

Emissions - Heavy Industrial

Electrical Equipment for Measurement, Control and Laboratory Use

Particular requirements for pressure transducers

## Hazardous Area Approvals (optional)

IECEX/ATEX Intrinsically Safe 'ia' Group IIC

For full certification details, refer to the type-examination certificates (or approval listings) and Hazardous Area Installation Instructions.

## Marine Approvals

### Det Norske Veritas (DNV) Approvals: TAA00000JY

Location	Class
Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure (DIN Plug)	C (IP56)
(Depth Cable)	D (IP68 -200 mH <sub>2</sub> O)
(Demountable Depth Cable)	D (IP68 -100 mH <sub>2</sub> O)

### China Classification Society (CCS) Approvals: NJ16T00162

The pressure transmitter is suitable for use in the following applications:

1. Trim control  
By moving fuel, cargo, and ballast around, the trim of the ship is maintained
2. A ship can be considered as an industrial site with engines and machines which have numerous pressure point measurement requirements.



# Ordering Information

See the online configuration tool at [www.unik5000.com](http://www.unik5000.com)

## (1) Select model number

### Main Product Variant

**PTX** 4-20 mA Pressure Transmitter

#### Product Series

**5** UNIK 5000

#### Diameter and Material

**6** 25 mm Stainless Steel 316L Fluid-Isolated (Marine Approved)

**7** 25 mm Titanium Fluid-Isolated (Marine Approved)

#### Electrical Connector

**7** DIN 43650 Form A Demountable (Mating connector supplied)

**N** Kynar Depth Cable

**P** Demountable Kynar Cable

**U** TPE-U Depth Cable

**V** Demountable TPE-U Cable

#### Electronics Option

**2** 4 to 20 mA 2-wire

#### 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

**A2** Improved

**A3** Premium

#### Calibration

**CA** Zero/Span Data

#### Hazardous Area Approval

**H0** None

**H1** IECEx/ATEX Intrinsically Safe 'ia' Group IIC **Note 1**

**J1** IECEx/ATEX /NEPSI IS IIC **Note 1**

#### Pressure Connector

**PA** G1/4 Female **Note 2**

**PB** G1/4 Male Flat

**PF** 1/4 NPT Male

**PH** M20x1.5

**PN** G1/2 Male via adaptor **Note 2**

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

**PW** Depth Cone (G1/4 Female open face)

**RJ** M20x1.5 Male (8mm Bore)

**RK** M20x1.5 Male (14mm Bore)

**PTX 5 6 7 2 - TA - A2 - CA - H0 - PA** Typical Model Number

### Ordering Notes:

Note 1: Available only with Electrical Connector options 7, N and P.

Note 2: 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 <sub>2</sub> O	mm water
cmH <sub>2</sub> O	cm water
mH <sub>2</sub> O	metres water
inH <sub>2</sub> O	inches water
ftH <sub>2</sub> O	feet water
mmHg	mm mercury
inHg	inches mercury
kgf/cm <sup>2</sup>	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

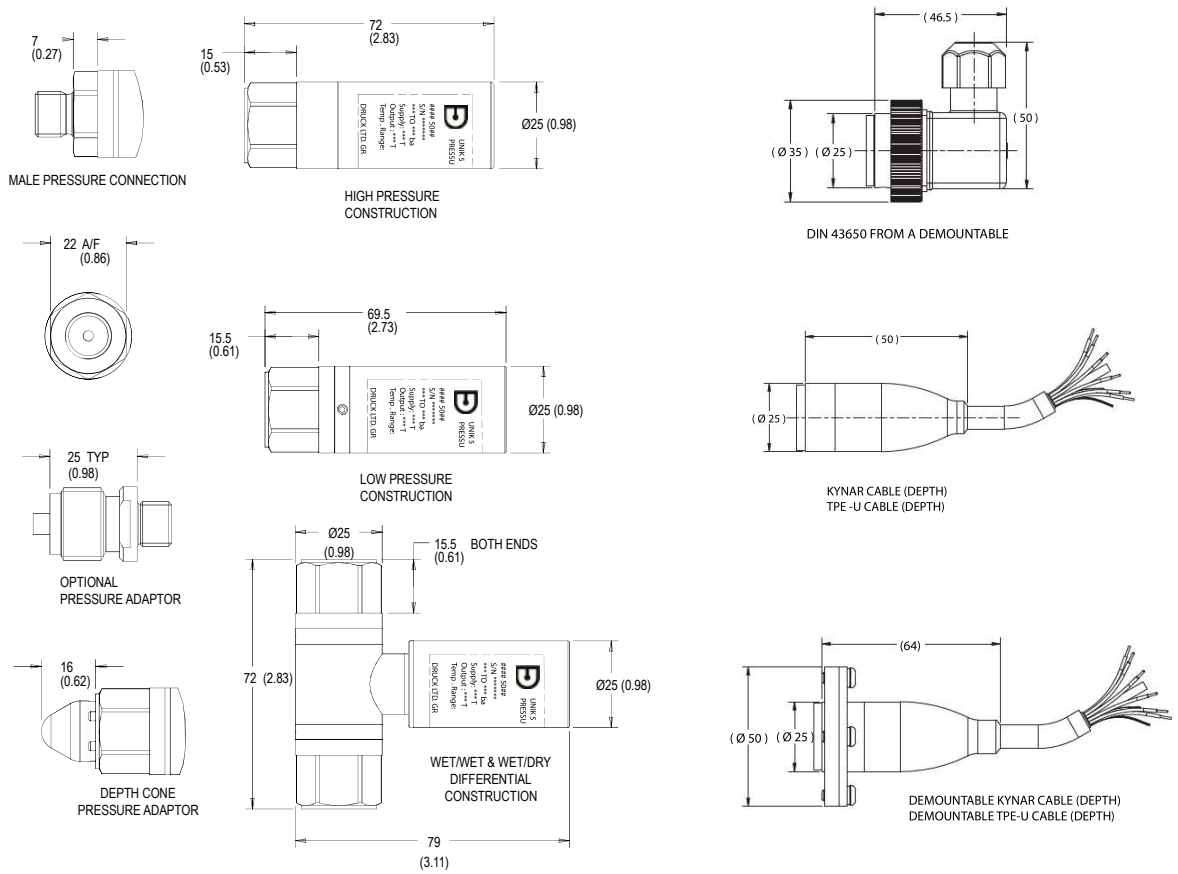
## 4) State cable length and units: Integer values only, e.g., 1 m cable, 8 ft. cable. Minimum length 1 m (3 ft.) (only required on certain electrical connections). Maximum cable length 100 m (300 ft.).

### Typical order examples:

PTX5672-TA-A2-CA-H0-PA, 0 to 3500 psi, absolute

PTX57N2-TA-A2-CA-H0-PA, 0-20 mH<sub>2</sub>O, gauge, 30 m cable

# Mechanical Drawings



NOTES:  
 [1] ALL DIMENSIONS ARE IN MILLIMETRES (INCHES)  
 [2] HIGH PRESSURE IS >70 BAR





**BAKER  
HUGHES**  
a GE company



Druck reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation. Contact your Druck representative for the most current information.

© Copyright 2020, Baker Hughes Company. This material contains one or more registered trademarks of Baker Hughes Company and its subsidiaries in one or more countries. All third-party product and company names are trademarks of their respective holders.

920-597D