

PDCR/PMP 4300 Series

Druck Motorsport/ Automotive Pressure Transducers



Success in motorsport depends on hundreds of components working together under extreme conditions, and Baker Hughes continues to develop Druck pressure transducers that give the ultimate performance. Druck motorsport sensors have become a world-leading product line used in Formula 1, World Rally Championship and the Indy Racing League, amongst others.

The PDCR/PMP 4300 Series is the latest in the range of products that for many years has been “fine tuned” in design to suit all chassis and engine pressure measurement requirements.

Features

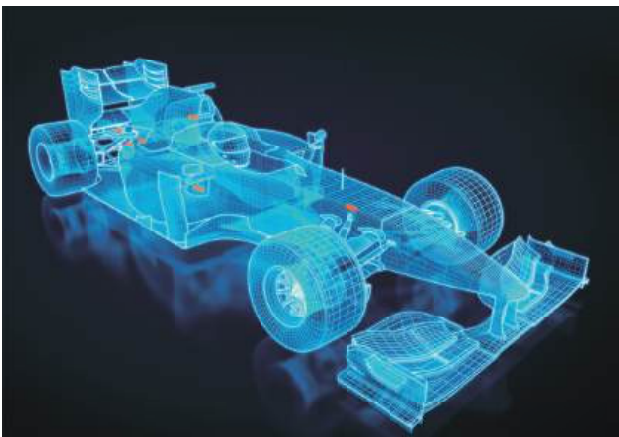
- Race proven technology
- High temperature capability to 350°F (175°C)
- Amplified or millivolt output
- Stainless steel or titanium construction
- Fully EMC protected
- Flexible mechanical/electrical interface options

Race Proven Technology

Since 1990 Druck products have been successfully applied to motorsport, and the PDCR/PMP 4300 Series is a high performance pressure sensor for this harsh environment application.



Reliability remains at the forefront of Baker Hughes's design and build philosophy. The combination of high technology sensing elements and advanced signal conditioning and packaging techniques provides reliable and accurate pressure measurements.



High Performance

Baker Hughes has a new advanced and comprehensive silicon processing facility and is one of a few companies turning raw silicon into finished pressure sensing products.

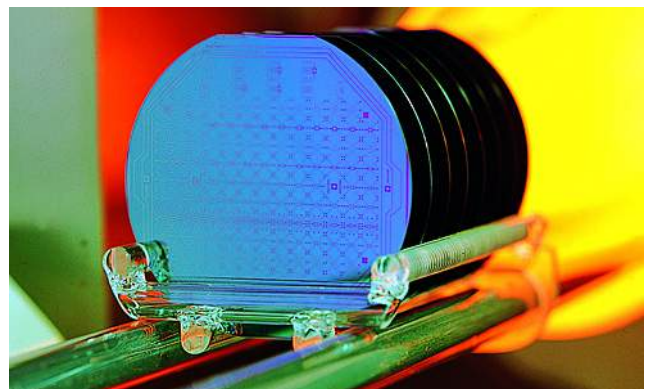
Each pressure module is fully temperature cycled to enhance long-term measurement stability. All metalwork is welded to form a rugged housing. Upon completion of the electrical connections the units are again thermally cycled to eliminate any possible defects in application.

This rugged construction enables the 4300 Series to operate under extreme temperature and vibration conditions.

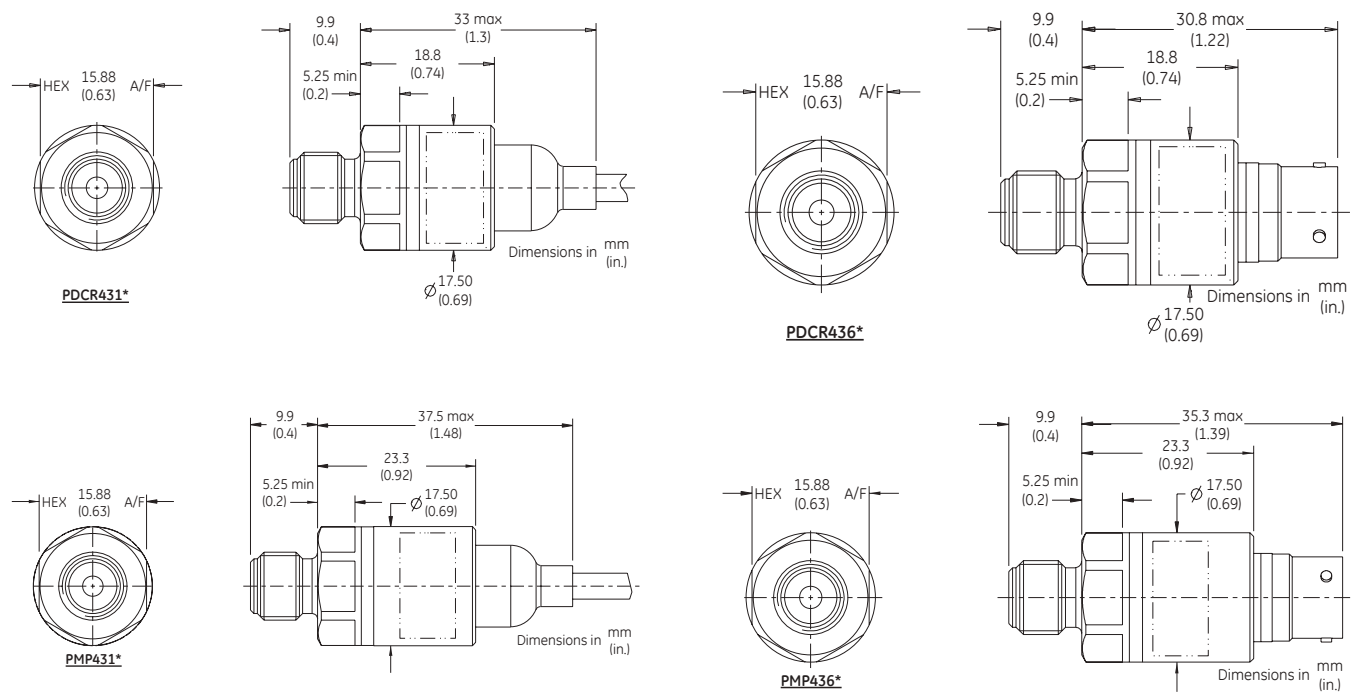


Flexible Design

The pressure sensing module and the electronics form a completely flexible core. Various configurations of electrical terminations and pressure connectors are available in both stainless steel and titanium. Baker Hughes has considerable experience in solving specific application problems by developing standard designs to suit customer-specific applications.



Dimensions



Wiring Details

P***431*

Cable Core Colour	PDCR431*	PMP431*
Red	+ve supply	+ve supply
Black	-ve supply	0V/common
Green	+ve output	Not connected
White	-ve output	+ve output
Blue	Temp (optional)	Temp (optional)
Screen	Conn. to case	Conn. to case

P***436*

Pin Number	PDCR436*	PMP436*
1	+ve supply	+ve supply
2	-ve supply	0V/common
3	+ve output	+ve output
4	-ve output	Temp (optional)
5	Temp (optional) or case	case

Specifications

Pressure Measurement

Pressure Ranges

1.6, 3 bar absolute (25, 45 psi absolute)
10, 15, 30, 80, 125, 250 bar absolute or sealed gauge
(145, 217, 435, 1160, 1810, 3625 psi absolute or
sealed gauge)

Note 1: All ranges are 0 based.

*Note 2: Sealed Gauge ranges are available on PMP
(Amplified) options only.*

Overpressure

Stainless steel: 2 x rated pressure or 375 bar (5440 psi)
maximum

Titanium: 2 x rated pressure

Pressure Containment

Stainless steel: 375 bar (5440 psi) maximum

Titanium: 500 bar (7250 psi) maximum

Media Compatibility

Fluids compatible with stainless steel 316L or
titanium grade 2 and 4

Resolution

Infinite

Excitation Voltage

PDCR 4300: 10 VDC nominally
(other regulated DC excitation levels can be specified)
PMP 4300: 12 VDC ± 4 VDC

Supply Current

PDCR 4300: < 2 mA
PMP 4300: < 5 mA

Zero Offset

PDCR 4300: ± 3 mVDC
PMP 4300: ± 50 mVDC

Span Setting

PDCR 4300: ± 3 mV
PMP 4300: ± 50 mVDC

Performance Specifications

Accuracy

PDCR 4300:

- $\pm 0.2\%$ full scale (FS) Best Straight Line (BSL) all
ranges

PMP 4300:

- $\pm 0.1\%$ full scale (FS) Best Straight Line (BSL) for
ranges up to (and including) 60 bar (870 psi)
- $\pm 0.2\%$ FS BSL for ranges above 60 bar (870 psi)

Long Term Stability

$< 0.1\%$ FS/year at reference conditions

Operating Temperature Range

-30° to 175°C (-25° to 350°F)

Compensated Temperature Range

Choose one of four options:

-30° to 175°C (-25° to 350°F)

0° to 175°C (32° to 350°F)

20° to 150°C (68° to 300°F)

40° to 170°C (104° to 340°F)

Thermal Performance

Temp. Range	PDCR43xx	PMP43xx
-30 to $+175^{\circ}\text{C}$	$< \pm 3.1\%$ FS referred to 20°C	$< \pm 2\%$ FS referred to 20°C
0 to $+175^{\circ}\text{C}$	$< \pm 2.6\%$ FS referred to 20°C	$< \pm 1.75\%$ FS referred to 20°C
$+20$ to $+150^{\circ}\text{C}$	$< \pm 2\%$ FS referred to 20°C	$< \pm 1.3\%$ FS referred to 20°C
$+40$ to $+170^{\circ}\text{C}$	$< \pm 2\%$ FS referred to 40°C	$< \pm 1.3\%$ FS referred to 40°C

Temperature Signal Output (Optional)

PDCR 4300: 1.5 VDC ± 1 VDC at 20°C (70°F)

PMP 4300: 2.9 VDC ± 0.5 VDC at 20°C (70°F)

Temperature Signal Sensitivity (Optional)

PDCR 4300: $3\text{ mV}/^{\circ}\text{C}$ $\pm 2\text{ mV}/^{\circ}\text{C}$

PMP 4300: $7\text{ mV}/^{\circ}\text{C}$ $\pm 1\text{ mV}/^{\circ}\text{C}$

Insulation Resistance

$> 100\text{ M}\Omega$ at 50 VDC

Output Impedance

PDCR 4300: $2\text{ k}\Omega$ nominal

PMP 4300: $< 100\text{ }\Omega$

Physical Specifications

Pressure Connection

Select from the standard fittings listed in the ordering
information.

Electrical Connection

- 1 m (3.28 ft) of 5 core Raychem cable spec
EPD 96401A
- 5 pin Deutsch Hermetic AS-Micro

Weight

PDCR 4300:

- AS micro stainless steel: $< 28\text{ g}$ (1 oz)
- AS micro titanium: $< 16\text{ g}$ (0.5 oz)
- Cable and stainless steel: $< 53\text{ g}$ (1.8 oz)
- Cable and titanium: $< 43\text{ g}$ (1.5 oz)
- Cable versions quoted with 1 m (40 in.) of cable

PMP 4300:

- AS micro stainless steel: <30 g (1 oz)
- AS micro titanium: <19 g (0.6 oz)
- Cable and stainless steel: 57 g (<2 oz)
- Cable and titanium: <45 g (1.5 oz)
- Cable versions quoted with 1 m (40 in.) of cable.

Installation Torque

10 Nm will produce negligible zero offset

Ordering Information Options

1. Mating electrical connector (supplied loose)
2. Temperature signal output

Vibration

50 to 2500 Hz @ 40g, 8 hours per axis, logarithmic sweep at a rate of 0.32 octaves/minute with no effect on calibration

Shock

1000 g, 1 ms half sine pulse in all three axes with no effect on calibration

EMC

CE mark statement “CE marked for electromagnetic compatibility”

Calibration Standards

Transducers manufactured by Baker Hughes are calibrated against precision pressure calibration equipment, which is traceable to International Standards.

4300 Series Ordering Information		
1) Specify the model number		
Output Type		
PMP	Amplified Voltage output	
PDCR	Passive mV output	
Model Code		
43	17.5 mm Autosport sensor	
Electrical Connector		
1	Raychem cable	
6	Deutsch Hermetic 5 pin AS micro	
Material of Construction		
1	Stainless steel	
2	Titanium	
Output Voltage		
OV1	0.2 to 4.7 V (Note 1)	
OV2	0.2 to 4.5 V (Note 1)	
OV3	0 to 50 mV (Note 2)	
Compensated Temperature Range		
T1	-30 to +175°C	
T2	20 to +150°C	
T3	40 to +170°C	
T4	0 to +175°C	
Pressure Connections		
PB	G1/4 Male Flat	
PD	G1/8 Male 60° Int Cone (Note 4)	
PF	1/4 NPT Male	
PG	1/8 NPT Male	
P13	M14 x 1.5 60° Int Cone	
P14	M8 x 1 Male	
P18	M10 x 1 Male	
P19	M10 x 1 Male 90° Ext Cone (Note 4)	
P20	3/8-24 UNF Male	
P21	5/16-24 UNJF MS33656 Male	
P22	7/16-20 UNF Flat End 74°	
P23	G1/8 BSP Male	
P24	M10 x 1 Male Snubber	
P56	M10 x 1 Male Wirelock (Note 4)	
Options		
A	Mating electrical connector (Note 3)	
B	Temperature signal output (Note 5)	
Note 1: Select with output type PMP Note 2: Select with output type PDCR Note 3: Suitable for electrical connector option 6		
Note 4: Only available in stainless steel construction Note 5: If selected on PDCR436*, pin 5 is not connected to case		
Example: PMP4311-OV1-T4-P18-B, 10 bar, absolute, 2 m cable		

2) State the pressure range and units

Pressure ranges are all zero based and can be any value from 1.6 bar to 250 bar.

Unit options are:

- bar
- psi
- kPa

3) State the pressure reference

Reference options are:

- Absolute
- Sealed gauge (Only for PMP versions of 10 bar range or above)

4) State cable length and units

- Default cable length is 1 m (3 ft)
- Longer cables can be requested upto a maximum of 10 m (33 ft)

Druck.com

Copyright 2020. Baker Hughes Company. This material contains one or more registered trademark 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.

920-078D

Baker Hughes 