



# 4400 Series

## Druck motorsport pressure and combined pressure/temperature transducers

Success in motorsport depends on hundreds of components working together under extreme conditions, and Druck continues to develop 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 4400 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 and pressure/temperature measurement requirements.

### Features

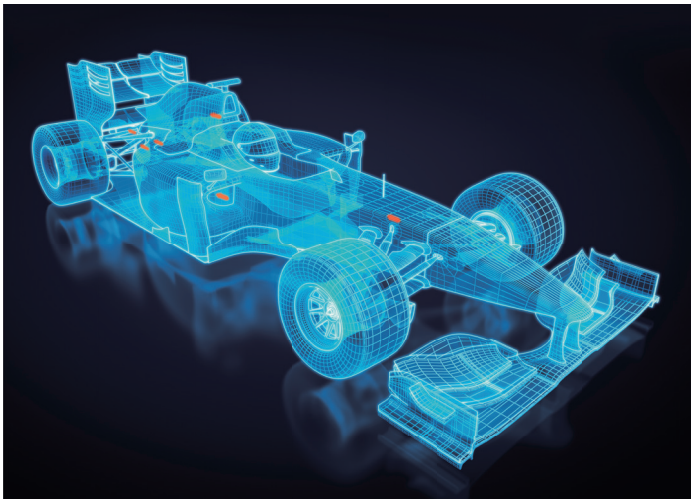
- Race proven technology
- High temperature capability to 175°C
- 12.5 mm diameter
- Amplified output
- Stainless steel construction
- Fully EMC protected
- Flexible mechanical/electrical interface options
- Available with PT1000 temperature probe

## Race proven technology

Since 1990 Druck products have been successfully applied to motorsport, and the 4400 Series is a high performance pressure sensor for this harsh environment application.

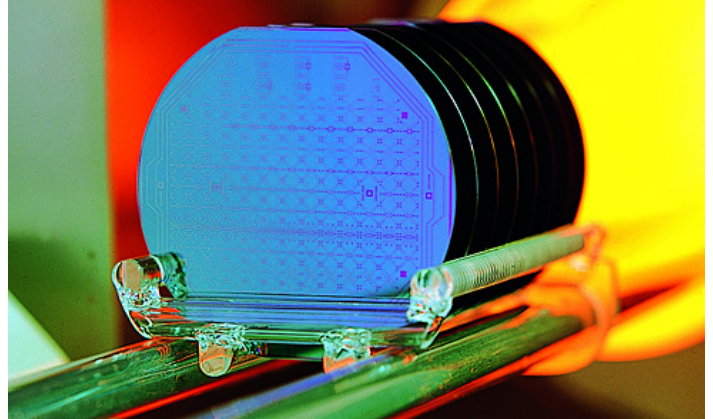


Reliability remains at the forefront of Druck's design and build philosophy. The combination of high technology sensing elements and advanced signal conditioning and packaging techniques provides reliable and accurate pressure measurements.



## 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 stainless steel. Druck has considerable experience in solving specific application problems by developing standard designs to suit customer-specific applications.

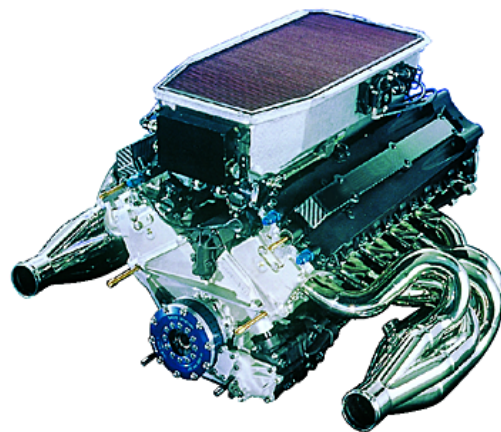


## High performance

Druck 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 4400 Series to operate under extreme temperature and vibration conditions.



# 4400 Series specifications

## Pressure measurement

### Pressure ranges

1.6, 10, 50, 350, 600 bar absolute

Note: All ranges are 0 based.

### Overpressure

- 2 × rated pressure for ranges to 50 bar
- 1.5 × rated pressure for 350 and 600 bar range

### Pressure containment

- 4 × rated pressure for ranges to 50 bar
- 1.5 × rated pressure for 350 and 600 bar range

### Media compatibility

Fluids compatible with stainless steel 316L

Stainless steel 17-4 PH and Inconel X-750/625

## Performance specifications

### Excitation

12 Vdc ±4 Vdc, unregulated

Supply Current: <5 mA

### Output voltage

0.2 to 4.7 Vdc

### Zero offset

±50 mV

### Span setting

±50 mV

### Accuracy

The combined effects of non-linearity and hysteresis

±0.25% FS BSL

### Long term stability

<0.1% FS/year

### Operating temperature range

-20° to 175°C

### Compensated temperature range

0° to 170°C

### Thermal performance

- Thermal zero shift (ref 20°C) : <±1.7% FS
- Thermal span shift (ref 20°C) : <±1.7% FS

### Insulation resistance

>100 MΩ at 50 Vdc

## Temperature measurement (4400T only)

Probe type: PT1000 to DIN EN60751 class B

Output: 2 wire resistance

## Physical specifications

### Pressure connection

Select from the standard fittings listed in the ordering information.

### Electrical connection

1.5 m (4.92 ft) of 3 core Raychem cable spec (Ø4.3) EPD 121168A

### Weight

<25 grams (not including cable)

### Installation torque

10 Nm will produce negligible zero offset

### 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

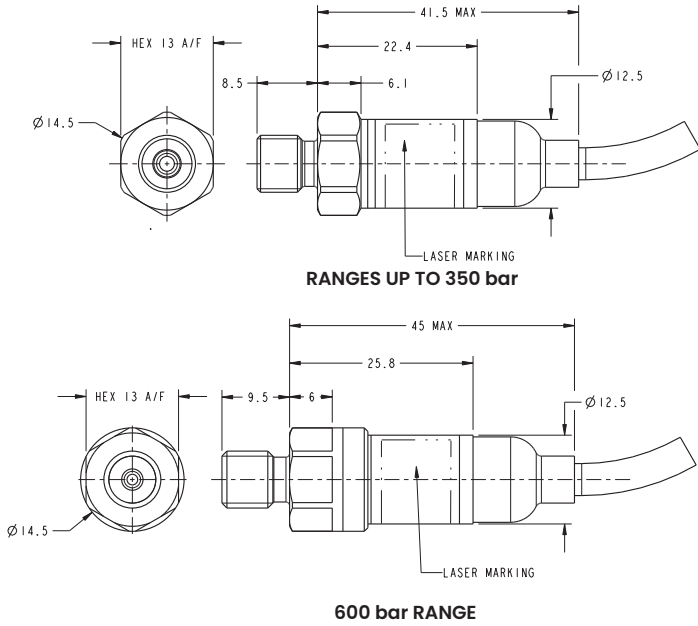
### EMC

CE mark statement "CE marked for electromagnetic compatibility"

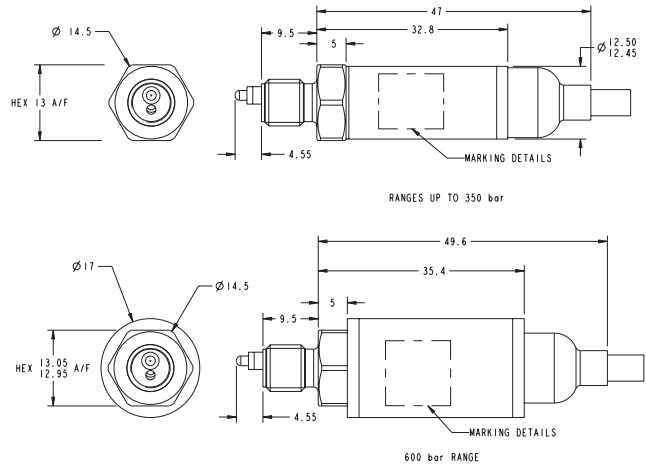


# Drawings and dimensions

## PMP4411



## PMP 4411T



### Wiring Connection Details

Color	Function
Red	+ve supply
Black	0V/common
White	+ve output
Screen	Connected to case
Yellow*	+ve temp
Blue*	-ve temp

\*4411T only

## Calibration standards

Transducers manufactured by Baker Hughes are calibrated against precision pressure calibration equipment, which is traceable to international standards

### 4400 series ordering information

#### 1) Specify the model number

##### Output type

PMP Amplified voltage output

##### Model Code

Pressure sensor 4411-V2-P14-S1  
 Pressure/Temperature sensor 4411T-V2-P14-S1

##### Electrical connector

1 - Raychem cable

##### Material of construction

1 - Stainless steel

##### Temperature Probe T

##### Output voltage

V2 - 0.2 to 4.7 Vdc

##### Pressure connections

P14 - M8 x 1 male

##### Screen connected to case

S1 - Required

#### 2) State the pressure range and units

**Example:** PMP4411-V2-P14-S1 0 to 50 bar absolute