ADROIT6000

Pressure Sensor

Instruction Manual

druck.com

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1. Introduction

1.1 Manufacturer

The identified manufacturer of this sensor is:

Druck Limited

Fir Tree Lane, Groby, Leicester, LE6 0FH, United Kingdom.

Telephone: +44 116 231 7100; Fax: +44 116 231 7103

Internet: **https://druck.com**

Under the instruction of Druck Limited, the pressure sensors may also be manufactured in China by:

Druck Sensing Technology (Changzhou) Co., Ltd.

Building 9A, Jintong International Industrial Park, No. 8-1 Xihu Road, Wujin National High-Tech Industrial Zone, Changzhou, Jiangsu, 213164, China.

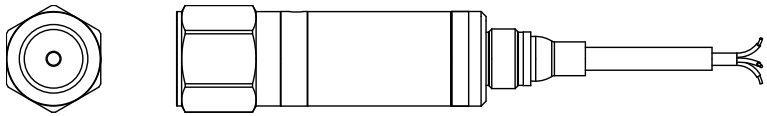
Each sensor is marked to indicate the country of manufacture.

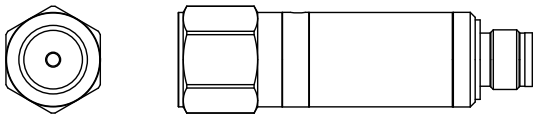
2. Description

2.1 Purpose

ADROIT6### pressure sensors (hereinafter referred to as sensors) are designed for continuous measurement and conversion of gauge, atmospheric, absolute and differential pressure into an analogue output signal of direct current or voltage.

ADROIT is a family of modern pressure sensors of modular design, the parameters of which are chosen by the customer at the time of order.





2.2 Technical Specification

Refer to the appropriate ADROIT6### data sheet for technical specifications and explanation of the product model number.

Model numbers appended with a eight-digit alphanumeric string denote the use of a customer-specific specification drawing indicating the use of additions or deviations to the data sheet specification. Refer to the specification drawing if applicable.

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2.3 Markings

The sensor will be marked with:

```
        ADROIT6###
        PRESSURE SENSOR
[1] ADROIT6###-T#-A#-CD-H0-P##
[2] S/N ########
[3] ### TO ### ### #
[4] Supply: ## TO ## V⎓## mA
[5] Output: ### TO ### ##
[6] DRUCK LTD. LEICESTER, LE6 0FH, UK
[7] MADE IN #####
```

Refer to figure above and explanation below:

1. Model number. Refer to the product datasheet for identification.

   Note: If the model number is followed by eight characters '-########', refer to manufacturer's specification drawing ########.
2. Serial number.
3. Pressure units, pressure reference.
4. Supply voltage limits.

   Note: Factory calibrated at 15 V.
5. Signal range and units.
6. Manufacturer's name and address.
7. Country of assembly.

3. Installation and Operation

3.1 General Requirements

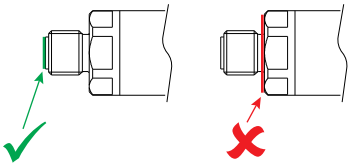
When the sensor is received, check the completeness in accordance with the supplied Calibration Certificate.

Read and understand all the related data before installing and using the sensor. This includes all local safety procedures and installation standards, this document and the product datasheet or specification drawing.

To identify the electrical and pressure connections, refer to the calibration certificate.

Ensure the sensor is mounted in a manner that avoids unwanted mechanical or thermal stress such as vibration, shock or excessive or rapid temperatures excursions.

A male pressure connector must not be sealed against the base of the thread.



The ambient temperature and the process media temperature to be measured must not exceed the ranges specified in the sensor specification.

For both gaseous and liquid media operating at low temperatures it is necessary to exclude crystallization or freezing components of the media from the working chambers and connecting pipelines.

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The materials used for the primary enclosure and pressure bearing surfaces are identified in the product data sheet or, if applicable, the specification drawing. Make sure that the materials are applicable for the installation.

Before using the sensor, remove the plastic/rubber protection cap from the pressure connector.

3.2 Safety Measures

WARNING Do not use with media that has an oxygen concentration > 21 % or other strong oxidizing agents.

This product contains materials or fluids that may degrade or combust in the presence of strong oxidizing agents.

Do not apply pressure greater than the maximum safe working pressure to the sensor.

The operation of sensors in systems where the pressure may exceed the overload values specified in the data sheet or customer-specific specification drawing is not allowed.

Connection and detachment of sensors from the mains supplying the pressure of the medium to be measured must be done after the shut-off valve is closed from the process and the pressure in the working chamber is made equal to atmospheric.

The connecting pipes should have a one-way slope (not less than 1:10) from the pressure collection point up to the sensor, if the medium to be measured is gas, and down to the sensor if the medium is liquid. If this is not possible, when measuring gas pressure at the lower points of the connecting lines, it is necessary to install sludge vessels, and when measuring the liquid pressure at the highest points, install gas collectors.

Selected devices for mounting sensors should be mounted on straight sections, at the maximum possible distance from pumps, locking devices, elbows, expansion joints and other hydraulic devices. It is especially not recommended to install sensors in front of the shut-off device if the medium to be measured is liquid. If water hammer exists in the system, it is recommended to install a hydraulic shock dampener.

Attach the sensor in a safe configuration that prevents unwanted stress (vibration, physical impact, shock, mechanical and thermal stresses). Do not install the sensor where it can be damaged by a material that causes corrosion. Provide additional protection for the sensor if it may be damaged in service.

When installing power supply and signal wiring, the possibility of condensate entering the sensor cable entry should be avoided.

3.3 Power Requirements

The power supply must be energy-limited to a maximum of 5 A.

3.4 Earthing (Grounding)

Connect the earth (ground) connections applicable to the installation.

3.5 Maintenance

The sensor contains no moving parts and requires a minimum of maintenance.

Do not try to do repairs to this sensor. Return the sensor to the manufacturer or an approved service agent.

3.5.1 Visual Inspection

Inspect the sensor for damage and corrosion. Any damage to the sensor must be assessed. If the housing is no longer sealed against water and/or dust, the sensor must be replaced.

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3.5.2 Cleaning

Clean the case with a damp lint-free cloth and mild detergent.

If the product has been in contact with hazardous or toxic materials, obey all the applicable Control of Substances Hazardous to Health (COSHH) or Material Safety Data Sheet (MSDS) references and precautions when handling.

3.5.3 Metrological Characteristics

The metrological characteristics of the sensor correspond to the declared values during the inter-testing interval as long as the consumer observes the storage, transportation and operation rules specified in this manual.

3.6 Storage and Transport

Sensors in an individual package are to be transported by any kind of closed transport, in accordance with the rules of transportation of goods acting on each mode of transport.

3.7 Returned Goods Procedure

If the sensor requires calibration or is unserviceable, return it to the nearest Druck Service Centre listed at: **https://druck.com/service**

Contact the Service Department to obtain a Return Goods/Material Authorization (RGA or RMA).

Provide the following information on either a RGA or RMA:

- Product (e.g. ADROIT6200)
- Serial number
- Details of defect/work to be undertaken
- Calibration traceability requirements
- Operating conditions

3.8 Waste Electrical and Electronic Equipment (WEEE) Directive

Druck is an active participant in the UK and EU Waste Electrical and Electronic Equipment (WEEE) take-back initiative (UK SI 2013/3113, EU directive 2012/19/EU).

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way. The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

Please visit the link below for take-back instructions and more information about this initiative.

https://druck.com/weee

3.9 Calibration and Adjustment

CAUTION Adjustment by unauthorized sources may affect the warranty and may not guarantee further performance.

Calibration data can be collected from the sensor using standard reference pressure sources and electrical measurement devices. Follow standard calibration procedures.

To optimize performance, it is recommended that calibration data is collected with the sensor:

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a. In the same physical orientation as in use.

b. With the same supply voltage as in use.

The sensors are calibrated during manufacture in the orientation pressure connector down and with the supply voltage at 15 V. Supply voltage sensitivity is less than 0.005% FS/V.

To adjust the Zero only: a value of pressure applied and electrical signal output as close to, but not below the lower range limit (LRL) of the sensor as practical must be recorded.

To adjust Zero and Span: values of pressure applied and electrical signal output, a Zero reading as close to, but not below the LRL, and full scale reading as close to, but not above the upper range limit (URL) as practical must be recorded.

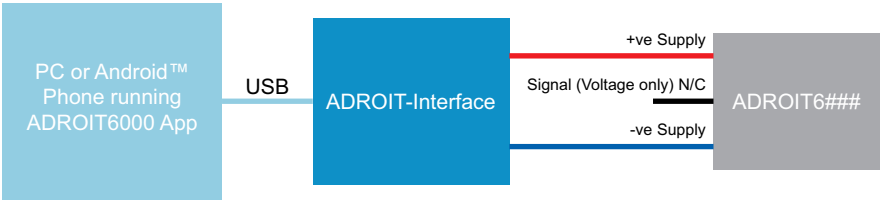
Once this data is collected, the Zero setting or Zero and Span settings can be adjusted on the ADROIT6### using the ADROIT-Interface in combination with the ADROIT6000 App.

3.9.1 Set-up

See **https://druck.com** or Google Play Store for software download of the ADROIT6000 App.

It is recommended that calibration data is collected as a separate action in line with standard calibration procedures as detailed in Section 3.9.

To adjust the sensor connect the sensor as detailed below.



3.9.2 App Use

Once the sensor is connected as shown, follow the on-screen instructions to adjust the ADROIT6###. Please note that you will only be able to recalibrate up to 5 % of the span from the original settings of the sensor.

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4. Key Documents

A calibration certificate will have been shipped with your ADROIT6### pressure sensor. The calibration certificate is printed exclusively in English. Please find attached a translated shell of the calibration certificate.

Thank you for purchasing from Druck.

Please register your product now using the QR code or link.

ADROIT6000

Pressure Sensor Calibration Data and Installation Instructions

Druck

Date	:	Serial number	:
Supply voltage	:	Output signal	:
Pressure range	:	Pressure connection	:
Part number	:		

Electrical Details

Power Supply Requirements
Supply Voltage.....

Output Signal
.....

Electrical Connection

Wiring Details
+ve Supply.....
–ve Supply.....
Case.....

Calibration Data

Room Temperature Calibration

Pressure (bar a)	Measured Deviation	Permitted Deviation

Performance

Compensated Temperature Range	:
Total Accuracy	:
Specification	:

Zero and Span Check

Low Range Output	:
Full Range Output	:
Span	:

Note: %Span is defined as %Output Span.
Calibration data collected at a supply voltage of 15 V in a vertical orientation.

The ADROIT6000 can be adjusted using the ADROIT6000 Interface and software.
See www.Druck.com or Google Play Store for software download.

PS1628 V1.0.0

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