Electronic and electro-mechanical pressure sensors
Available as pneumatic, vacuum, hydraulic and all fluid versions
Various electronic and fluid connections
Compact and robust design
Long trouble free life cycle
Pressure sensor technology is critical when pressure monitoring for higher plant security or pressure control for higher functionality are needed in an application.

With the integration of Herion into the Norgren group in 1997 we can offer our customers over 50 years of combined pressure sensor technology experience and expertise to find the appropriate solution for each customer.

Choose from our extensive range of pressure sensor technology including switches and sensors, electro-mechanical and electronic, pneumatic, vacuum, hydraulic and all fluid, analogue and digital/binary.

In the field of pressure sensor technology, Norgren employs different techniques which enables us to offer the most appropriate solution to our customers. Our product portfolio extends from robust electro-mechanical pressure switches to intelligent and teachable electronic switches and sensors.

**Electro mechanical pressure switches**

Mechanical pressure switches are used to connect and disconnect electronic circuits depending on the operating pressure. Norgren’s pressure switches deliver safe and reliable minimum pressure monitoring and offer the advantages of automatic switch off and pressure limit warnings.

The life span and accuracy of mechanical pressure switches depends on the frequency and peaks of pressure changes, number of load cycles and the influence of temperature.

**Electronic pressure switches and sensors**

Electronic pressure switches and sensors are particularly suitable in applications where the classic mechanical pressure switch is not suitable. Offering benefits in accuracy, life span and functionality Norgren’s range is highly suitable for modern manufacturing technologies.

Pressure set points are adjustable by using integrated LED’s, LED or LCD digital display. This offers today’s modern automation process the advantages of easy set up and time savings.
PRESSURE SENSOR APPLICATIONS

MACHINE TOOLS

» SENSING OF COMPONENT POSITION IN POLISHING PROCESS

Nagel GmbH manufactures super finishing and tape finishing machines for automotive components. The company has purchased pneumatic air gap monitoring systems that will be incorporated in polishing machines.

The air gap monitoring system senses whether the component is correctly positioned prior to polishing. Between operations the unit also blows the area clean. These products operate at 16 bar with one outlet.

The 33D electronic pressure switch is the control element of the air gap monitoring system and provides high accuracy.

PAINTING

» CONTROL OF VARIOUS FLUIDS IN PAINTING PLANTS

Duerr Systems GmbH manufactures painting production lines for automotive plants. Pressure switches are located at various positions in this system controlling the pressure of fluids including compressed air and water.

The electro-mechanical 18D provides a labs-free and cost-effective solution to our customer production lines.

PRINTING

» PRESSURE CONTROL ON PRINTING MACHINES

MAN Roland Druckmaschinen AG uses the Norgren 33D to monitor the folding operation. Switching points at 6.05 bar (timed) and 5.05 bar ensure the pressure is sufficient. The 33D offers two switching points and has replaced the two pressure switches from a competitor previously used to perform this operation. The 33D is a much more cost-effective solution for MAN Roland.

Other Applications:
pressure monitoring in the main air line (8 bar)
pressure control at the printing unit
pressure control in the automatic roll changeover

LABELLING MACHINE

» SENSING LABEL IN VACUUM RANGE

In production labels are applied automatically to the valves. The 40D pressure switch is used by leading manufacturers of labelling equipment to sense the change in vacuum pressure when there is a label present on the pad. This pressure switch has a range sensitive enough to carry out the required task.

OTHER APPLICATIONS INCLUDE: AUTOMOTIVE, PACKAGING, BOTTLING, PAPER, MEDICAL, POWER GENERATION, PROCESS AUTOMATION, FOOD AND BEVERAGE, COMMERCIAL VEHICLES, HANDLING AND SPECIAL PURPOSE MACHINES, ELECTRONICS, MARITIME
ELECTRONIC PRESSURE ADVANTAGE

BENEFITS OF THE 33 SERIES

33L - HIGH QUALITY SOLUTION WITH A 3-DIGIT EXTREMELY BRIGHT DISPLAY

1. Three-colour LED display
   - Indicates the switching status – Due to the high luminance, it can be seen from a 6 meter distance. This results in easy detection of critical conditions.
   - The colour combination (green/oil) can be changed according to customers’ demands and therefore fits various applications.
   - The display can be turned upside down (180° option) plus the compact design saves space in tight mounting conditions.

2. Keypad with 3 user-friendly buttons
   - The keypad with 3 user-friendly buttons allows comfortable and easy programming of set / reset points as well as other 33L functions.
   - Electronic lock (including master-key function) to prevent unauthorised personnel from changing the set-up, resulting in higher plant security.
   - Configurable without operating pressure to save time at the programming stage.
   - Self-diagnosis function to detect errors resulting in higher plant security.

3. High functionality and versatility
   - The 33L optionally offers threaded (G, NPT) or flanged process connections according to customer demands.
   - Available as pneumatic, vacuum, hydraulic and all-fluid versions up to 600 bar to suit many applications.

4. Output signals
   - The 33L has two digital outputs. The standard version provides a switching output and a warning output, which can also be programmed as an additional switching output. This provides higher functionality for Norgren customers.

33L - HIGH QUALITY SOLUTION WITH A 3-DIGIT EXTREMELY BRIGHT DISPLAY

33D - MULTI-FUNCTIONAL SOLUTION FOR THE MOST DEMANDING APPLICATIONS

The partitioned 4-digit LCD display allows the permanent display of the system pressure. The pressure unit is programmable (bar, psi, mpa).

The keypad with 3 user-friendly buttons allows comfortable and easy programming of the 33D functions.

The user is guided during the set up programming with graphics and text on the display.

High functionality and versatility through different process connections, various electronic outputs (1 x PNP, 2 x PNP, PNP/analog) and pressure ranges up to 630 bar.

33E - COST-EFFECTIVE SOLUTION WHERE DISPLAY IS NOT NEEDED

Simplified and cost-effective alternative within the 33 series – includes LED indicating the switching status, operation and warning and features a compact and robust design.

The keypad with 2 user-friendly buttons allows comfortable and easy programming of the 33E functions.

High versatility is provided through different process connections and operating pressures up to 400 bar.
ELECTRO-MECHANICAL PRESSURE ADVANTAGE

18D ROBUST AND COMPACT PRESSURE SWITCH

1. High functionality and versatility
   Suitable for many pneumatic and hydraulic applications with operating pressures:
   -1 ... 30 bar for gases and neutral fluids (membrane technology)
   5 ... 420 bar for hydraulics (piston technology)

2. Special solutions
   Low temperature version with anodised housing to enable indoor and outdoor applications – resulting in a higher functionality for our customers

3. Very flexible
   Various electronic and process connections to satisfy customer requirements

4. Additional approvals and versions
   Versions with Shipping approvals – suitable for all kind of shipping industries
   Labs-free – to satisfy the requirements of the automotive industry and their suppliers e.g. Painting
   Approval according to ATEX (94/9/EG) – to meet customer requirements in explosion hazardous environments

5. Robust and compact design
   High over pressure safety resulting in higher plant security in case of pressure peaks or malfunction
   Shockproof up to 15g with an accuracy of +/- 3%. Especially important for mobile applications and rough environments

20D ROBUST PRESSURE SWITCH WITH HIGH ACCURACY

1. Great variety of technology advantages
   Can be operated with neutral, aggressive, liquids and gaseous fluids in many industries with different operating pressures:
   -1 ... 25 bar for neutral gases (membrane technology)
   -1 ... 100 bar for all fluids (bellows technology)
   -1 ... 420 bar for hydraulics (piston technology)
   High repeatability: +/- 1% resulting in higher quality

2. Very flexible and modular
   Possibilities for different port sizes and electronic connections

3. Special versions and solutions
   Ex, flange versions, pneumatic signal option, power plant versions – Ideal for deployment in power plants, process technology and many other industrial applications.
   Approval according to ATEX (94/9/EG) – to meet customer requirements in explosion hazardous environments

4. High versatility
   Options for different material combinations

5. Additional approvals and versions
   Versions with Shipping approvals – suitable for all kind of shipping industries
   Labs-free – to satisfy the requirements of the automotive industry and their suppliers (e.g. Painting)
   Approval according to ATEX (94/9/EG) – to meet customer requirements in explosion hazardous environments

6. Robust and compact design
   High over pressure safety resulting in higher plant security in case of pressure peaks or malfunction
   Shockproof up to 15g with an accuracy of +/- 3%. Especially important for mobile applications and rough environments
# CHOOSING YOUR EQUIPMENT

1. Decide whether you need a pressure sensor or a pressure switch
2. If a pressure switch then decide if it should be electro-mechanical or electronic
3. Determine the media and the pressure range
4. Decide if you need certain repeatability
5. If you need a display or a LED then chose an option
6. Chose the output signal type

<table>
<thead>
<tr>
<th>Electro-mechanical</th>
<th>Electronic</th>
<th>Media</th>
<th>Pressure range (bar)</th>
<th>Repeatability</th>
<th>Digital display</th>
<th>LED (indicating switching status)</th>
<th>Output signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure sensor 185 pneumatic</td>
<td>•</td>
<td>Pneumatic</td>
<td>-1 ... 25</td>
<td>&lt; 1%</td>
<td>None</td>
<td>Analog output (4-20mA)</td>
<td></td>
</tr>
<tr>
<td>Pressure sensor 185 allfluid</td>
<td>•</td>
<td>Allfluid</td>
<td>0 ... 800</td>
<td>&lt; 1%</td>
<td>None</td>
<td>Analog output (4-20mA)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 18D</td>
<td>•</td>
<td>Pneumatic Vacuum Hydraulic</td>
<td>0 ... 30 -1 ... 1 5 ... 420</td>
<td>&lt; 3%</td>
<td>None</td>
<td>Electro-mechanical switching output (SPDT)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 20D low pressure</td>
<td>•</td>
<td>Pneumatic</td>
<td>0 ... 1,6</td>
<td>&lt; 1%</td>
<td>None</td>
<td>Electro-mechanical switching output (SPDT)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 20D</td>
<td>•</td>
<td>Pneumatic Vacuum Allfluid</td>
<td>1 ... 25 -1 ... 1 3 ... 420 -1 ... 100</td>
<td>&lt; 1%</td>
<td>None</td>
<td>Electro-mechanical switching output (SPDT)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 33D</td>
<td>•</td>
<td>Pneumatic Vacuum Hydraulic/Allfluid (neutral and aggressive fluids/gases)</td>
<td>0 ... 16 -1 ... 1 0 ... 600 0 ... 630</td>
<td>&lt; 1%</td>
<td>LCD display</td>
<td>Switching output (1xPNP) Switching outputs (2xPNP) Switching (PNP) + analog output (4-20mA)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 33L</td>
<td>•</td>
<td>Pneumatic Vacuum Hydraulic/Allfluid (neutral fluids/gases)</td>
<td>0 ... 16 -1 ... 1 0 ... 600</td>
<td>&lt; 1,5%</td>
<td>LED display (3 colours)</td>
<td>Switching outputs (2xPNP)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 33E</td>
<td>•</td>
<td>Pneumatic Vacuum Hydraulic/Allfluid (neutral fluids/gases)</td>
<td>0 ... 16 -1 ... 1 0 ... 400</td>
<td>&lt; 1,5%</td>
<td>None</td>
<td>Switching output (PNP)</td>
<td></td>
</tr>
<tr>
<td>Pressure switch 40D</td>
<td>•</td>
<td>Pneumatic Vacuum</td>
<td>0 ... 10 -1 ... 1</td>
<td>&lt; 1%</td>
<td>LED display</td>
<td>Switching outputs (2xPNP) Switching (PNP) + analog output (1-5V)</td>
<td></td>
</tr>
</tbody>
</table>