



## NP785 ULTRA LOW DIFFERENTIAL PRESSURE TRANSMITTER

### DATASHEET – V2.0x A

Ideal for HVAC, clean room, and flow measurement applications, **NP785 Ultra Low Differential Pressure Transmitter** is an ultra-low differential pressure transmitter for measuring overpressure, under pressure, and small differential pressure in neutral and non-corrosive gaseous media. Using the configuration software, it provides a linear signal output proportional to the pressure with configurable measurement range via USB.

**NP785** can operate bidirectionally and measure differential pressure ranges from vacuum to positive pressure. Its ABS/PC housing for DIN rail mounting and its nickel-plated connectors accept pneumatic hoses with 4 or 6 mm inner diameter.

The analog output can be configured for 0-10 V or 4-20 mA, and since it has an RS485 interface, retransmission can be accomplished by Modbus RTU communication. Designed for HVAC and industrial environments, the device ensures temperature compensation for long-term stability and complies with EMC standards.

### MEASUREMENT RANGES

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
<b>Measurement Ranges</b>	-50 to 50 Pa	-100 to 100 Pa	-5 to 5 mbar	-20 to 20 mbar	-68 to 68 mbar	-400 to 400 mbar	-1000 to 1000 mbar
<b>Proof Pressure*</b>	68 mbar	68 mbar	100 mbar	300 mbar	136 mbar	800 mbar	2000 mbar
<b>Burst Pressure</b>	200 mbar	200 mbar	200 mbar	400 mbar	2000 mbar	4000 mbar	4000 mbar
<b>Line Pressure**</b>	68 mbar	68 mbar	100 mbar	300 mbar	136 mbar	800 mbar	2000 mbar

Table 1 – Measurement ranges

\* **Proof Pressure:** The maximum pressure that the device can be subjected to and still perform within specifications after returning to operating range.

\*\* **Line pressure:** The maximum pressure that can be applied simultaneously to both pressure ports of the sensor without causing permanent damage and without applying differential pressure.

### PERFORMANCE

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
<b>Accuracy (RSS, includes linearity, hysteresis, and repeatability)</b>	1.5 % of maximum range F.S.***	1 % of maximum range F.S.	1 % of maximum range F.S.	0.5 % of maximum range F.S.	1 % of maximum range F.S.	0.5 % of maximum range F.S.	0.5 % of maximum range F.S.
<b>Total error (RSS, includes linearity, hysteresis, repeatability, and temperature variation)</b>	< ± 3.1 % of maximum range F.S.	< ± 1.6 % of maximum range F.S.	< ± 1.5 % of maximum range F.S.	< ± 1 % of maximum range F.S.	< ± 2 % of maximum range F.S.	< ± 1 % of maximum range F.S.	< ± 1 % of maximum range F.S.
<b>Mounting Position Influence</b>	< ± 0.03 % of maximum range. It can be corrected by adjusting the zero.						
<b>Supply Voltage Influence</b>	< 0,001 % F.S. / V						
<b>Zero Setting</b>	Between -20 % of the lower limit and +20 % of the upper limit. It can be done through software or the Auto-Zero key.						
<b>Effective Sensor Resolution</b>	0.005 % F.S.	0.002 % F.S.	0.008 % F.S.	0.008 % F.S.	0.032 % F.S.	0.013 % F.S.	0.01 % F.S.
	14.4 bits	15.4 bits	13.6 bits	13.6 bits	11.6 bits	12.9 bits	13.4 bits
<b>Digital reading resolution****</b>	8.6 bits	9.6 bits	12 bits	13.6 bits	11.6 bits	12.9 bits	13.4 bits
<b>Start-Up Time</b>	< 2 s						
<b>Measurement Update Time</b>	<15 ms****		<50 ms****			<15 ms****	

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<b>RS485 – Response Time</b>	< 41ms, reading 125 registers at 115200 bps						
<b>Analog output – Response Time (0 – 95%)</b>	<55 ms****		<90 ms****			<55 ms****	
<b>Digital Filter</b>	Configurable via software. From 0 to 300s						

Table 2 – Performance

\*\*\* Full Scale (F.S.): Under reference conditions: Ambient 23 °C ± 3°C, 24 V supply, 250 Ω load. Vertical mounting. Line pressure: 0 mbar when applying Auto-Zero.

\*\*\*\* With 0s filter.

\*\*\*\*\* The resolution shown corresponds to the digital values read from registers 0 to 5 and is lower than the sensor resolution due to the limitation of decimal places. The digital values read from registers 6 to 11 have the same resolution as the sensor.

## INPUTS AND OUTPUTS

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
<b>Power Supply Voltage</b>	<ul style="list-style-type: none"> <li>Power supply through PWR terminals: 12 Vdc to 30 Vdc.</li> <li>Power supply through USB cable: 4.75 Vdc to 5.25 Vdc.</li> </ul> Internal protection against reverse polarity of the supply voltage.						
<b>Power Supply Current</b>	< 45 mA ± 10 % @ 24 Vdc						
<b>Input</b>	02 sockets for connecting pneumatic hoses of 4 or 6 mm of internal diameter.						
<b>Output</b>	It can be independently configured to operate with 0-10 V or 4-20 mA signals. <ul style="list-style-type: none"> <li>0-10 V: Maximum current: 2 mA. Resolution: 0.003 V.</li> <li>4-20 mA: Maximum load: 500 R. Resolution: 0.006 mA.</li> </ul>						
<b>Alarm Output</b>	<ul style="list-style-type: none"> <li>Channel N 30 V / 200 mA type output.</li> <li>Protection against overcurrent &gt; 200 mA.</li> <li>Overcurrent protection reset time: 5 seconds.</li> </ul>						
<b>Electromagnetic Compatibility</b>	EN/IEC 61326-1						

Table 3 – Inputs and outputs

## ENVIRONMENTAL CONDITIONS

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
<b>Operating Temperature</b>	-20 to 70 °C (-4 to 158 °F)		-5 to 65 °C (23 to 149 °F)		-20 to 70 °C (-4 to 158 °F)		
<b>Storage Temperature</b>	-20 to 85 °C (-4 to 185 °F)						

Table 4 – Environmental conditions

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
<b>Protection index</b>	IP20						
<b>Housing</b>	ABS + PC						
<b>Wetted parts</b>	Materials include silicone, glass, RTV, gold, aluminum, copper, nickel, palladium, epoxy, stainless steel, and plastic.						
<b>Dimensions</b>							

Table 5 – Mechanical data

**NXperience** software is the primary tool for configuring, downloading, and analyzing data from the **NP785 Ultra Low Differential Pressure Transmitter**. It allows you to explore all the equipment features, communicating via the Micro USB type B interface, and is available in the Download Area at [www.novusautomation.com](http://www.novusautomation.com).

**CE Mark**

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Warranty conditions are available on our website [www.novusautomation.com/warranty](http://www.novusautomation.com/warranty).