



NP785 ULTRA LOW DIFFERENTIAL PRESSURE TRANSMITTER

DATASHEET – V2.0x

INTRODUCTION

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.

TECHNICAL SPECIFICATIONS

MEASUREMENT RANGES

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
Measurement Ranges	-50 a 50 Pa	-100 a 100 Pa	-5 a 5 mbar	-20 a 20 mbar	-68 a 68 mbar	-400 a 400 mbar	-1000 a 1000 mbar
Proof Pressure*	68 mbar	68 mbar	100 mbar	300 mbar	136 mbar	800 mbar	2000 mbar
Burst Pressure	200 mbar	200 mbar	200 mbar	400 mbar	2000 mbar	4000 mbar	4000 mbar
Line Pressure**	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
Accuracy (RSS, includes linearity, hysteresis, and repeatability)	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.
Total error (RSS, includes linearity, hysteresis, repeatability, and temperature variation)	< ± 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.
Mounting Position Influence	< ± 0.03 % of maximum range. Can be corrected by adjusting the zero.						
Supply Voltage Influence	< 0,001 % F.S. / V						
Zero Setting	Between -20 % of the lower limit and +20 % of the upper limit. Can be done through software or Auto-Zero key.						
Effective Sensor Resolution	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
Digital reading resolution****	8.6 bits	9.6 bits	12 bits	13.6 bits	11.6 bits	12.9 bits	13.4 bits
Start-Up Time	< 2 s						
Measurement Update Time	<15 ms****		<50 ms****			<15 ms****	
Response Time for the RS485	< 41ms, reading 125 registers at 115200 bps						

Response Time for the analog output (0 – 95%)	<55 ms****	<90 ms****	<55 ms****
Digital Filter	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
Power Supply Voltage	<ul style="list-style-type: none"> Power supply through PWR terminals: 12 Vdc to 30 Vdc. Power supply through USB cable: 4.75 Vdc to 5.25 Vdc. Internal protection against reverse polarity of the supply voltage.						
Power Supply Current	< 45 mA ± 10 % @ 24 Vdc						
Input	02 sockets for connecting pneumatic hoses of 4 or 6 mm of internal diameter.						
Output	Can be independently configured to operate with 0-10 V or 4-20 mA signals. <ul style="list-style-type: none"> 0-10 V: <ul style="list-style-type: none"> Maximum current: 2 mA. Resolution: 0.003 V. 4-20 mA: <ul style="list-style-type: none"> Maximum load: 500 R. Resolution: 0.006 mA. 						
Electromagnetic Compatibility	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
Operating Temperature	-20 to 70 °C (-4 to 158 °F)		-5 to 65 °C (23 to 149 °F)		-20 to 70 °C (-4 to 158 °F)		
Storage Temperature	-20 to 85 °C (-4 to 185 °F)						

Table 4 – Environmental conditions

MECHANICAL DATA

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
Protection index	IP20						
Housing	ABS + PC						
Wetted parts	Materials include silicone, glass, RTV, gold, aluminum, copper, nickel, palladium, epoxy, stainless steel, and plastic.						
Dimensions	<p>The image shows two mechanical drawings of the sensor. The left drawing is a front view showing a vertical rectangular housing with a green sensor element at the top. Dimensions include a total height of 77.9 mm, a top section height of 12.4 mm, a top width of 19 mm, and a top offset of 4 mm. The right drawing is a side view showing the profile of the housing. Dimensions include a total height of 72.6 mm, a top width of 72 mm, and a top offset of 9.6 mm.</p>						

Table 5 – Mechanical data

CONFIGURATION SOFTWARE

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 functionality and features of the equipment, communicating via the USB-Micro type B interface, and is available in the Download Area at www.novusautomation.com.

CERTIFICATIONS

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

Warranty conditions are available on our website www.novusautomation.com/warranty.