

Ultra Low Differential Pressure Transmitter



NP785

- ✓ Available nominal ranges: **± 50 Pa (± 0.2 inH2O)** to **± 1000 mbar (± 14.5 Psi)**
- ✓ Ranges fully **configurable by software** within rated range
- ✓ **Temperature** compensated for higher stability at low pressures
- ✓ Output signal DC **0 to 10 V** or **4 to 20 mA** and slave Modbus RTU, in **one-only-model**
- ✓ Resistant to overpressure
- ✓ Auto-zero Key
- ✓ Diagnostic LED

Ideal for HVAC, clean-room and flow measurement applications, the **NP785** is an ultra low differential pressure transmitter for measuring very small over-pressure, under-pressure and differential pressure in neutral, non-corrosive gaseous media. It provides a pressure proportional linear signal output with configurable measuring range via USB using the configuration software.

NP785 can operate bi-directionally, providing the ability to measure differential pressure ranges from vacuum to positive pressure. It is housed in a DIN rail mountable ABS/PC enclosure and its nickel plated brass fittings accept pneumatic hoses with 4 or 6 mm internal diameter.

The analog output can be set to either 0-10 V or 4-20 mA while having an RS485 port with Modbus RTU communication protocol. Designed for HVAC and industrial environment, the **NP785** ensures temperature compensation for long-term stability and complies with EMC standards, providing robustness and reliability for a wide range of applications.

	NP785-50PA	NP785-100PA	NP785-05	NP785-20	NP785-68	NP785-400	NP785-1000
Measurement Range	-50 to 50 Pa (0.2 inH2O)	-100 to 100 Pa (0.4 inH2O)	-5 to 5 mbar (2 inH2O)	-20 to 20 mbar (8 inH2O)	-68 to 68 mbar (1 Psi)	-400 to 400 mbar (5.8 Psi)	-1000 to 1000 mbar (14.5 Psi)
Proof Pressure*	6800 Pa (27.3 inH2O)	6800 Pa (27.3 inH2O)	100 mbar (40.1 inH2O)	300 mbar (120.4 inH2O)	136 mbar (2 Psi)	800 mbar (11.6 Psi)	2000 mbar (29 Psi)
Burst Pressure	20000 Pa (80.3 inH2O)	20000 Pa (80.3 inH2O)	200 mbar (80.3 inH2O)	400 mbar (160.6 inH2O)	2000 mbar (29 Psi)	4000 mbar (58 Psi)	4000 mbar (58 Psi)
Line Pressure	6800 Pa (27.3 inH2O)	6800 Pa (27.3 inH2O)	100 mbar (40.1 inH2O)	300 mbar (120.4 inH2O)	136 mbar (2 Psi)	800 mbar (11.6 Psi)	2000 mbar (29 Psi)
Accuracy	1.5 % of maximum range	1 % of maximum range	1 % of maximum range	0.5 % of maximum range	1 % of maximum range	0.5 % of maximum range	0.5 % of maximum range
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.
Operating Temperature	-20 a 70 °C (-4 to 158 °F)		-5 a 65 °C (23 to 149 °F)	-20 a 70 °C (-4 to 158 °F)			
Power Supply Voltage	PWR terminals: 12 Vdc to 30 Vdc USB cable power: 4.75 Vdc to 5.25 Vdc Internal protection against reverse polarity						
Consumption	45 mA ± 10% @ 24Vdc						
Protection Rating	IP20						
Dimensions	19 x 77.9 x 72 mm						
Housing	ABS + PC						
EMC	EN/IEC 61326-1						
Certification	CE						

* **Proof Pressure** is defined as the maximum pressure at which the device can be subjected and which still maintains its performance within specifications after returning to the operating range.
 ** **Maximum Range** at 25°C.



NP785 ULTRA LOW DIFFERENTIAL PRESSURE TRANSMITTER

DATASHEET – V2.1x

1 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. The configuration software or app provides a linear pressure proportional signal output 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.

2 TECHNICAL SPECIFICATIONS

2.1 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 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
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

* **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.

2.2 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. It 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. It can be done through software, app, or the 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						

	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
Measurement Update Time	<15 ms****		<50 ms****			<15 ms****	
RS485 – Response Time	< 41ms, reading 125 registers at 115200 bps.						
Analog output – Response Time (0 – 95%)	<55 ms****		<90 ms****			<55 ms****	
Digital Filter	Configurable via software or app. From 0 to 300s.						

Table 2

*** 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.

2.3 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	It 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. 						
Alarm Output	<ul style="list-style-type: none"> Channel N 30 V / 200 mA type output. Protection against overcurrent > 200 mA. Overcurrent protection reset time: 5 seconds. 						
Electromagnetic Compatibility	EN/IEC 61326-1						

Table 3

2.4 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

3 MECHANICAL DATA

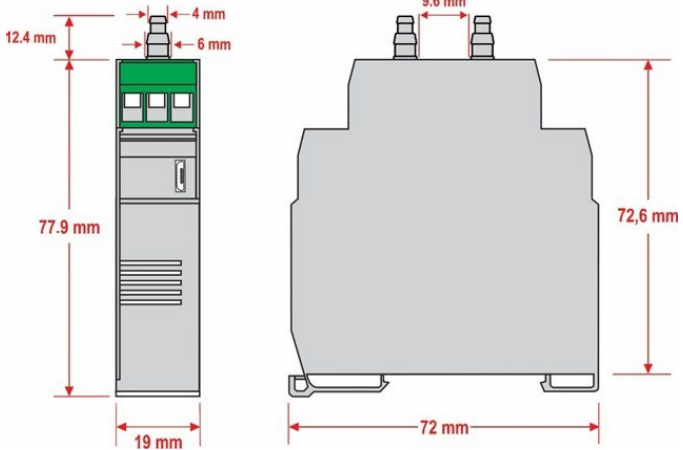
	NP785-50PA MODEL	NP785-100PA MODEL	NP785-05 MODEL	NP785-20 MODEL	NP785-68 MODEL	NP785-400 MODEL	NP785-1000 MODEL
Protection index	IP20						
Housing	ABS + PC						
Wetted parts	Materials include silicone, glass, RTV, gold, aluminum, copper, nickel, palladium, epoxy, stainless steel, and plastic.				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

Table 5

4 CONFIGURATION SOFTWARE AND APP

The **SigNow** software and app are the key tools for configuring, downloading, and analyzing **NP785** data. They allow you to explore all features of the device.

To install the software, you need to download and run the **SigNowSetup.exe** file, available on our website.

The **SigNow** app is available for Android and iOS smartphones. It can be downloaded for free from the *Google Play Store* or *App Store*.

5 CERTIFICATIONS

CE Mark / UKCA

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.

6 WARRANTY

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

JHB Branch

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