

# Non-display Solid-state Pressure Transmitter

Catalog Numbers 836P-N2x, 836P-N3x

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## Summary of Changes

Updated ratings for ambient temperature, medium temperature, and storage temperature in [Specifications on page 1](#).

## Safety Considerations

- Read this document for information on installation, handling, mounting, general product specifications, and operation of this product. These installation instructions contain important information on handling the instrument.
- Working safety requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the range of use of the instrument.
- The installation instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.
- Skilled personnel must have carefully read and understood the installation instructions, before any work begins.
- The Bulletin 836P-N pressure transmitter measures and monitors absolute and gauge pressures. The device has been safely built with state-of-the-art technology and meets the applicable requirements and EC directives. It can, however, be a source of danger if used incorrectly or for anything other than the designated use.

- Qualified individuals are required for installation and commissioning. Failure to comply results in personal injury or equipment damage.
- During mounting, make sure that the sealing faces at the instrument and the measuring point are clean and undamaged.
- **Safety Installation Considerations:** Before installation, commissioning, and operation, be sure that the appropriate pressure transmitter has been selected in terms of measuring range, design, and specific measuring conditions.

## Qualified Personnel

Qualified personnel are understood to be personnel who, based on their technical training, knowledge of measurement and control technology, and on their experience and knowledge of the country-specific regulations, current standards and directives, are capable of implementing the work that is described and independently recognize potential hazards.

## Specifications

### Output Signals

Signal	Load
4...20 mA	≤ power supply -8V/0.02 A

### Power Supply

Power Supply	Total Current Consumption
8...30V DC	Signal current, maximum 25 mA

**IMPORTANT** The power supply for the pressure transmitter must be made via an energy limited electrical circuit in accordance with section 9.3 of UL/EN/IEC 61010-1, or an LPS per UL/EN/IEC 60950-1, or class 2 in accordance with UL-1310/UL1585(NEC or CEC). The voltage supply must be suitable for operation above 2,000 m (6561.66 ft) and should the pressure transmitter be used at this altitude.

## Specifications (Continued)

### Measuring Ranges

Gauge Pressure														
bar	Measuring Range	0...1	0...1.3	0...2	0...2.5	0...4	0...6	0...9	0...13	0...17	0...20			
	Overpressure Limit	2	2.6	4	5	8	12	18	26	34	40			
	Measuring Range	0...24	0...34	0...68	0...99	0...137	0...206	0...344	0...399	0...551	0...689			
	Overpressure Limit	48	68	136	198	274	412	688	798	1,102	1,378			
psi	Measuring Range	0...14.5	0...20	0...30	0...36.2	0...60	0...100	0...145	0...200	0...250	0...300			
	Overpressure Limit	29	40	60	72	120	200	290	400	500	600			
	Measuring Range	0...362	0...500	0...1000	0...1450	0...2000	0...3000	0...5000	0...5800	0...8000	0...10,000			
	Overpressure Limit	724	1000	2000	2900	4000	6000	10,000	10,600	16,000	20,000			
Absolute Pressure														
bar	Measuring Range	0...1	0...1.3	0...2	0...2.5	0...4	0...6	0...9	0...13	0...17	0...20			
	Overpressure Limit	2	2.6	4	5	8	12	18	26	34	40			
psi	Measuring Range	0...14.5	0...20	0...30	0...36.2	0...60	0...100	0...145	0...200	0...250	0...300			
	Overpressure Limit	29	40	60	72	120	200	290	400	500	600			
Vacuum and +/- Measuring Range														
bar	Measuring Range	-1...1	-1...1.3	-1...2	-1...2.5	-1...4	-1...6	-1...9	-1...13	0...17	0...20			
	Overpressure Limit	2	2.6	4	5	8	12	18	26	34	40			
psi	Measuring Range	-30 in Hg...14.5	-30 in Hg...20	-30 in Hg...30	-30 in Hg...36.2	-30 in Hg...60	-30 in Hg...100	-30 in Hg...145	-30 in Hg...200	-30 in Hg...250	-30 in Hg...300			
	Overpressure Limit	29	40	60	72	120	200	290	400	500	600			

#### Performance Characteristics

Load	Analog signal 4...20 mA: (Power supply -8V)/0.02 A
Settling time	< 4 ms
Switch on time	< 15 ms

#### Accuracy Data

mBar models: non-repeatability measuring range	≤ 0.1 bar ≤ 0.2% span ≤ 0.1% of span
mBar models range of measure	≤ 0.1 bar: ≤ 0.2% of span ≤ 0.1 bar: ≤ 0.1% of span
Signal noise	≤ ± 0.3% of span
Temperature error at 0...80 °C (32...176 °F) in rate temperature range	Typical: 1.0% of span Maximum: 2.5% of span
Long-term drift	≤ ± 0.1% of span
Range of measure	≤ 0.1 bar: ≤ ± 0.5% of span > 0.4 bar: ≤ ± 0.2% of span > 0.4 bar: ≤ ± 0.1% of span
Non-linearity	≤ ± 0.5% of span

#### Reference Operation Conditions (per IEC 61298-1)

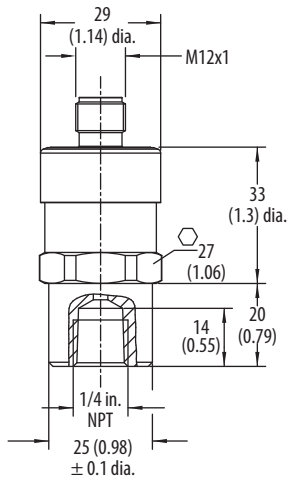
Temperature	15...25 °C (59...77 °F)
Atmospheric pressure	860...1060 mbar
Humidity	45...75% r. h.
Mounting position	As required
Power supply	24V DC

#### Operating Conditions: Environment

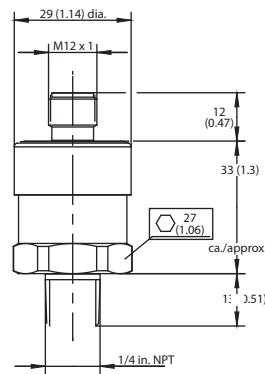
Ambient temperature range	1/4 in. NPT: -30...+100 °C (-22...+212 °F) G 1/4 in.: -30...+100 °C (-22...+212 °F)
Medium temperature	G 1/2 in.: -30...+100 °C (-22...+212 °F) SAE 7/16-20 UNF: -20...+100 °C (-4...+212 °F)
Storage temperature	-40...+70 °C (-40...+158 °F)
Vacuum resistance	10 mbar <sub>abs</sub> (0.145 psi)
Humidity	45...75 % r. h.
Service life	10 million load cycles
Shock resistance	500 g (17.64 oz) (IEC 60068-2-27, mechanical)
Short circuit resistance	Analog + vs. Analog -
Reverse polarity protection	Analog + vs. Analog -
Vibration resistance	10 g (0.35 oz) (IEC 60068-2-6, under resonance)
Ingress protection (per IEC 60529)	IP67 – M12x1 4 pin

## Dimensions [mm (in.)]

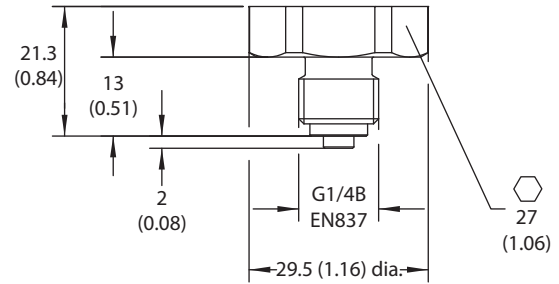
### 1/4 in. NPT Female



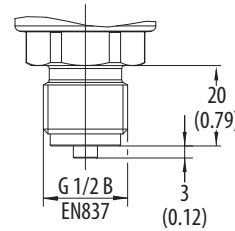
### 1/4 in. NPT Male



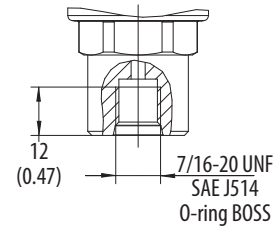
### Process Connection G 1/4 BSPP



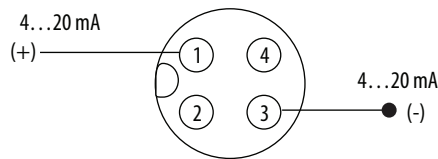
### G 1/2 B EN837



### 7/16-20 UNF



## Wiring Diagrams



## Mating Cables

889D-F4AC-2 (M12x1 connector)

889D-R4AC-2 (M12x1 right angle connector)

## Process Connection

Measuring Cell	Piezoresistive measuring cell and metallic measuring diaphragm	
Application	Measurement and monitoring of absolute and gauge pressures	
Process connection	Thread – 1/4 NPT female – 1/4 NPT male – G1/4 BSPP male	G 1/2B SAE 7/16-20 UNF O-ring BOSS

## Commissioning



**ATTENTION:** Before commissioning, the pressure transmitter must be subjected to a visual inspection.

- Fluid leakage is indicative of damage.
- Only use the pressure transmitter if it is in perfect condition concerning safety.

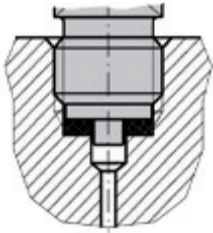
## Making the Mechanical Connection

- While mounting, make sure that the sealing faces at the instrument and the measuring point are clean and undamaged.
- Only screw or unscrew the instrument via the spanner flats and to the prescribed torque with an appropriate tool. The correct torque depends on the dimensions of the process connection and the gasket used (form/material). When screwing or unscrewing the pressure transmitter, do not use the housing as contact surface.
- Be careful not to cross-thread.
- Max torque is 50 N·m (442.54 lb-in).

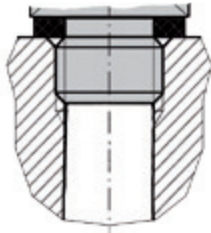
## Types of Sealing

### Parallel Thread

per EN 837

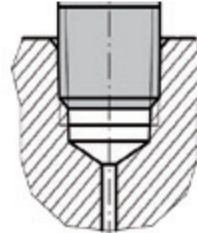


per DIN 3852-E



### Tapered Thread (NPT)

NPT



Correct sealing of the process connections with parallel threads at the sealing face must be made using suitable flat gaskets and sealing rings.

The sealing of the tapered threads (for example, NPT thread) is made by providing the thread with additional sealing material such as, PTFE tape (EN 837-2).

## Dismounting and Disposal



**ATTENTION:** Residual media in the dismantled pressure transmitter can result in a risk to persons, the environment, and equipment. Take sufficient precautionary measures.

**Dismounting:** Only disconnect the pressure transmitter once the system has been depressurized.

**Disposal:** Incorrect disposal can put the environment at risk.

Dispose of instrument and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

## Rockwell Automation Support

For technical support, visit <http://www.rockwellautomation.com/support/overview.page>.

## Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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