

## Type N-10, N-11 Hazardous Area Non-incendive Transmitters



### Applications

- Natural gas compressors
- Wellhead monitoring
- Pipeline pressure
- General industrial applications

### Special Features

- FM approved non-incendive for Class I Division 2 hazardous locations
- Engineered to meet the harsh demands of gas compressor applications
- Does not require the use of intrinsically safe barriers
- NACE MR-01-75 compliant wetted parts
- 4-20 mA or low power 1-5 volt output signals available

### Description

Type N-10 pressure transmitters are specifically designed to meet the durability and performance requirements of gas compressor systems. These pressure transmitters feature an industry standard 4-20 mA 2 wire signal output, NEMA 4X (IP 67) weather protection and are extremely resistant to pressure spikes, vibration and moisture intrusion. NACE MR-01-75 compliance provides extra resistance against sulfide stress cracking when exposed to gases containing sulphur.

Type N-11 pressure transmitters feature a flat, non-clogging diaphragm. This is designed for use with viscous fluids or media containing particulates that could clog the pressure port of the standard NPT version.



Left: N-10 pressure transmitter with NPT connection  
Right: N-11 flush diaphragm pressure transmitter

The transmitters are engineered to meet Class I Division 2 non-incendive protection requirements in hazardous environments. Each undergoes extensive quality control testing and calibration to achieve a linearity of  $\leq 0.25\%$  full scale. In addition, each pressure transmitter is temperature compensated to assure accuracy and long term stability when exposed to severe ambient temperature variations.

Specifications		Type N-10, N-11								
Pressure range		5 psi	10 psi	15 psi	25 psi	30 psi	60 psi	100 psi	200 psi	300 psi
Maximum pressure*		29 psi	58 psi	72 psi	145 psi	145 psi	240 psi	500 psi	1,160 psi	1,160 psi
Burst pressure**		35 psi	69 psi	87 psi	170 psi	170 psi	290 psi	600 psi	1,390 psi	1,390 psi
Pressure range		500 psi	1,000 psi	1,500 psi	2,000 psi	3,000 psi	5,000 psi	8,000 psi <sup>1</sup>	10,000 psi <sup>1</sup>	15,000 psi <sup>1</sup>
Maximum pressure*		1,160 psi	1,740 psi	2,900 psi	4,600 psi	7,200 psi	11,600 psi	17,400 psi	17,400 psi	21,750 psi
Burst pressure**		5,800 psi	7,970 psi	11,600 psi	14,500 psi	17,400 psi	24,650 psi <sup>2</sup>	34,800 psi	34,800 psi	43,500 psi
{vacuum, gauge pressure, compound ranges, and absolute pressure references are available}										
Materials										
■ Wetted parts		Nace compliant <sup>5</sup>								
> N-10		Stainless steel (≥ 300 psi stainless steel and Elgiloy)								
> N-11		Stainless steel; O-ring: NBR {Viton or EPDM}								
■ Case		Stainless steel								
Internal transmission fluid		Synthetic oil (only for pressure ranges up to 300 psi or flush diaphragm units)								
Power supply U <sub>B</sub>		DC V	10 < U <sub>B</sub> ≤ 30 for 4 ... 20 mA, 2-wire 6 < U <sub>B</sub> < 30 for 1 ... 5 V, 3-wire low power version							
Signal output and maximum load R <sub>A</sub>		4 ... 20 mA: R <sub>A</sub> ≤ (U <sub>B</sub> - 10 V) / 0,02 A with R <sub>A</sub> in Ohm and U <sub>B</sub> in Volt 1 ... 5 V, 3-wire: R <sub>A</sub> > 10 kOhm								
Response time (10 ... 90 %)		ms	≤ 1 (≤ 10 ms when media temperatures are below -22 ° F ( -30 ° C) for pressure ranges up to 300 psi or with flush diaphragm)							
Isolation voltage		V	500							
Accuracy <sup>3)</sup>		% of span	≤ 0.25 (BFSL)							
		% of span	≤ 0.5 (limit point calibration)							
Non-repeatability		% of span	≤ 0.05							
Hysteresis		% of span	≤ 0.1							
1-year stability		% of span	≤ 0.2 (at reference conditions)							
Permissible temperature of										
■ Medium			-22 ... +212 ° F				-30 ... +100 ° C			
■ Ambient			-22 ... +212 ° F				-30 ... +100 ° C			
■ Storage			-22 ... +221 ° F				-30 ... +105 ° C			
Compensated temp. range			32 ... +176 ° F				0 ... +80 ° C			
Temperature coefficients in compensated temp range:										
■ Mean TC of zero		% of span	≤ 0.2 / 10 K (< 0,4 for pressure range < 100 InWC)							
■ Mean TC of range		% of span	≤ 0.2 / 10 K							
Approval authority		<ul style="list-style-type: none"> <li>■ Factory Mutual (FM) non-incendive with entity approval for: <ul style="list-style-type: none"> <li>Class 1, Division 2, Groups A, B, C, D</li> </ul> </li> <li>■ Dust ignition-proof for Class II and III, Division 1, Groups E, F and G <ul style="list-style-type: none"> <li>Maximum electrical ratings 30 V, 20 mA</li> </ul> </li> </ul> FM Standards according to FMRC 3600, 3611, 3810								
HF-immunity		V/m	10							
Burst		KV	4							
Ingress protection		NEMA 4X (IP 67)								
Shock resistance		g	1,000 according to IEC 60068-2-27 (mechanical shock)							
Vibration resistance		g	20 according to IEC 60068-2-27 (vibration under resonant conditions)							
Wiring protection		Protected against reverse polarity, overvoltage, and short circuiting								
Weight		lb	0.4							

\* Pressure applied up to the maximum rating will cause no permanent change in specifications but may lead to zero and span shifts

\*\*Exceeding the burst pressure may result in destruction of the transmitter

- 1) Only Type N-10.
- 2) For Type N-11: the burst pressure is limited to 21,000 psi unless the pressure seal is accomplished by using the sealing ring underneath the hex.
- 3) Includes non-linearity, hysteresis and repeatability. Limit point calibration performed in vertical mounting position with pressure connection facing down.
- 4) Transmitters will function when exposed to these extended temperature ranges. The media, when exposed to temperature extremes, may change characteristics that effect transmitter performance.
- 5) Wetted parts comply with recommendations per NACE MR0175. Environmental limits apply to certain materials. Consult latest standard for details.

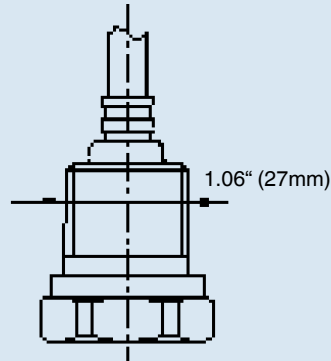
{ } Items in curved brackets are options available at additional cost.

Electronic Pressure Catalog > Hazardous Area > N-10, N-11

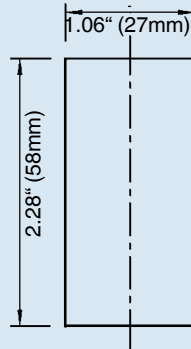
## Dimensions in inches (mm)

### Electrical connection

6 foot cable with free ends  
NEMA 4 / IP 67  
Order code: 2X

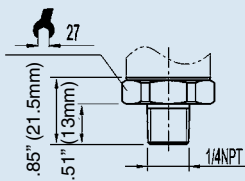


### Case

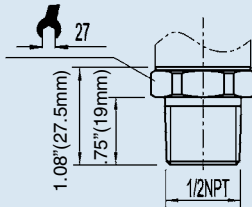


### N-10 pressure connections

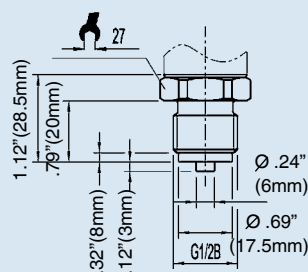
1/4 NPT male  
Order code: NB



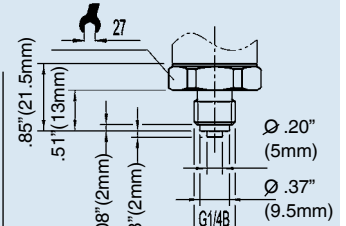
1/2 NPT male  
Order code: ND



G 1/2  
EN 837  
Order code: GD

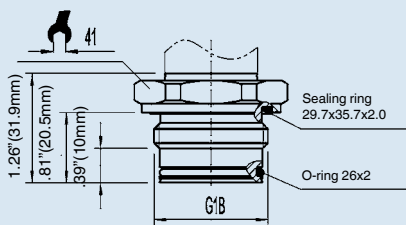


G 1/4  
EN 837  
Order code: GB

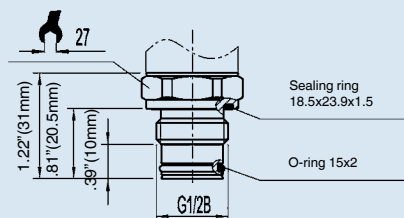


### N-11 flush diaphragm pressure connections

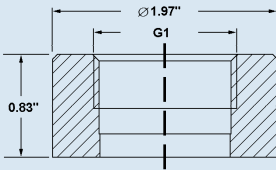
N-11 G 1  
50 InWC to 25 psi  
Order code: 85



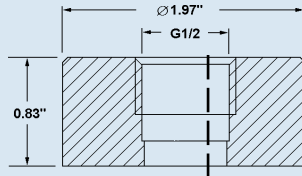
N-11 G 1/2  
30 psi to 5,000 psi  
Order code: 86



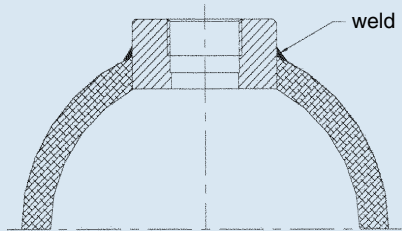
## Matching P-1 weld insert adapters for N-11 flush diaphragm transmitters



P-1 G1 weld insert adapter  
Part # 1206974  
for pressure ranges  $\leq 25$  psi

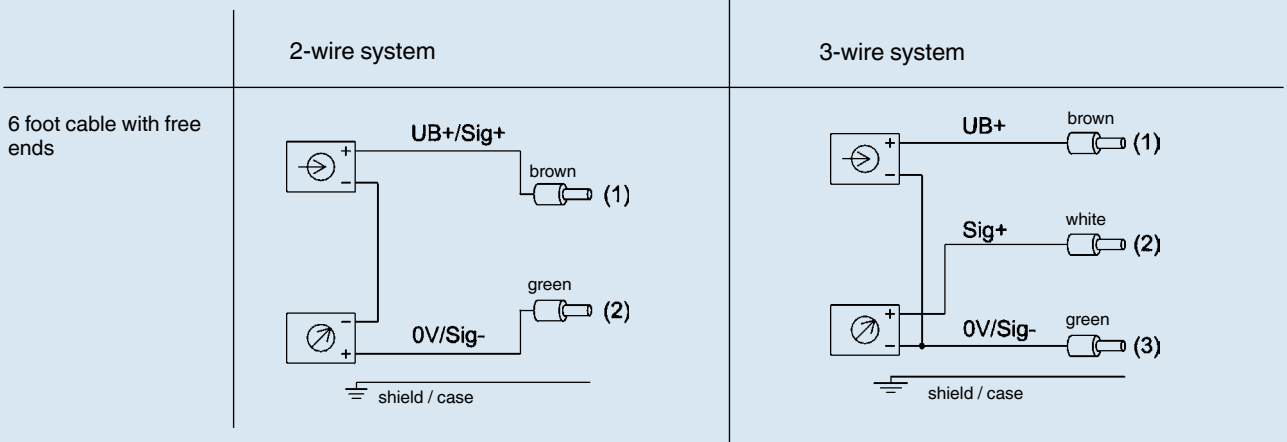


P-1 G1/2 weld insert adapter  
Part # 1097008  
for pressure ranges  $\geq 30$  psi

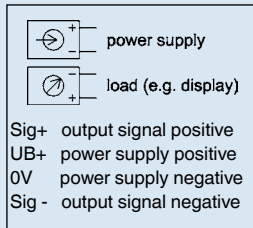


Cross section view of P-1 adapter installed in pipe.

## Wiring details



### Legend:



## Type N-10 Hazardous Area Non-incendive Transmitter Vacuum to 15,000 psi

### Standard Features

- **Signal output:** 4-20 mA 2-wire or 1-5 V 3-wire
- **Supply voltage:** 10-30 DC  
(6-30 VDC for 1-5 V version)
- **Process connection:** 1/4 NPT Male
- **Electrical connection:** 1/2" NPT male conduit  
with 6 foot cable



N-10 Gauge Ranges		
Description		
Range	Part #	
	4-20 mA 2-wire	1-5 V 3-wire
30" INHG Vacuum	4348296	4354619
30"-0-30 psi	<b>4348309</b>	<b>4354627</b>
30"-0-100 psi	4332431	4354636
0-15 psi	<b>4348317</b>	4354644
0-30 psi	<b>4348326</b>	4354652
0-60 psi	4348334	4354660
0-100 psi	<b>4348342</b>	<b>4354678</b>
0-200 psi	<b>4348350</b>	<b>4354686</b>
0-300 psi	<b>4348368</b>	4354695
0-500 psi	<b>4346216</b>	<b>4354708</b>
0-1,000 psi	<b>4332440</b>	<b>4354716</b>
0-1,500 psi	<b>4338597</b>	4354725
0-2,000 psi	<b>4348376</b>	<b>4354733</b>
0-3,000 psi	<b>4347000</b>	<b>4354741</b>
0-5,000 psi	<b>4347018</b>	<b>4354759</b>
0-8,000 psi	4348385	4354767
0-10,000 psi	<b>4348393</b>	4354776
0-15,000 psi	<b>4348406</b>	<b>4354784</b>

## N-10 Smart Codes for Custom Order Configurations

Field no. Code Feature

Field no.	Code	Feature
1	<b>Signal output</b>	
	A	4 ... 20 mA, 2-wire
	K	1 ... 5 V, 3-wire
	?	Other - please specify
2	<b>Unit</b>	
	P	psi
	3	psi absolute
	?	Other - please specify
3	<b>Pressure range</b>	
	CA	-30 inHg ... 0
	CD	-30 inHg ... 30 psi
	CH	-30 inHg ... 100 psi
	BC	0 psi ... 15 psi (0 psi ... 15 psi absolute)
	BD	0 psi ... 30 psi
	BE	0 psi ... 60 psi
	BF	0 psi ... 100 psi (0 psi ... 100 psi absolute)
	BH	0 psi ... 200 psi
	BI	0 psi ... 300 psi
	DI	0 psi ... 500 psi
	BN	0 psi ... 1,000 psi
	BO	0 psi ... 1,500 psi
	BP	0 psi ... 2,000 psi
	BQ	0 psi ... 3,000 psi
	BS	0 psi ... 5,000 psi
	DS	0 psi ... 8,000 psi
	BT	0 psi ... 10,000 psi
	BU	0 psi ... 15,000 psi
		??
4	<b>Process connection</b>	
	NB	1/4" NPT
	??	Other - please specify
5	<b>Special design features</b>	
	Z	Without
	L	Low power <sup>1)</sup>
	?	Other - please specify
6	<b>Electrical connection</b>	
	2X	1/2" NPT male conduit with cable (NEMA 4X/ IP 67)
	M4	4 Pin locking plug M12x1 (NEMA 4/IP67)
	??	Other - please specify

**N-10 Smart Codes for Custom Order Configurations (cont'd)**

Field no.	Code	Feature
<b>Cable length</b>		
7	6	6 feet
	1	10 feet
	2	20 feet
	3	30 feet
	?	Other - please specify
<b>Approvals</b>		
8	N	EEx nA II 3G T6 7 II 3D per ATEX (always with M4)
	F	FM, CSA non-incendive (always with 2X)
<b>Quality certificates</b>		
9	Z	Without
	I	NIST Certificate of Calibration
<b>Additional order details</b>		
10	Z	Without
	T	Additional order details

HAZARDOUS AREA

1) Low power only with 1-5 V signal output (supply 6 ...30 V).

Order Code:      1      2      3      4      5      6      7      8      9      10\*

**N-10** -  -   -  -  **G**    -

\*Additional order details \_\_\_\_\_



# Type N-11 Non-incendive Flush Diaphragm Pressure Transmitter Vacuum to 5,000 psi

## Standard Features

- **Signal output:** 4-20 mA 2-wire or 1-5 V 3-wire
- **Supply voltage:** 10-30 DC  
(6-30 VDC for 1-5 V version)
- **Process connection:** G1B or G1/2B flush diaphragm depending on pressure range
- **Electrical connection:** 1/2" NPT male conduit with 6 foot cable



## N-11 Gauge Ranges Ready-To-Ship Transmitters

Range	Description	
	Part #	
	4-20 mA 2-wire	1-5 V 3-wire
30"-0-30 psi	4372579	
0-15 psi <sup>1</sup>	<b>4354822</b>	4354792
0-100 psi	<b>4358428</b>	4354806
0-300 psi	<b>4364410</b>	
0-1,000 psi	4364690	4364428
0-2,000 psi	4358436	4354814
0-3,000 psi	4364509	

Notes:

<sup>1</sup> Pressure ranges from 50 InWC to 25 psi are supplied with a G1B process connection.



## N-11 Smart Codes for Custom Order Configurations

Field no.	Code	Feature
1	<b>Signal output</b>	
	A	4 ... 20 mA, 2-wire
	K	1 ... 5 V, 3-wire
	?	Other - please specify
2	<b>Unit</b>	
	P	psi
	3	psi absolute
	?	Other - please specify
3	<b>Pressure range</b>	
	CA	-30 inHg ... 0
	CD	-30 inHg ... 30 psi
	CH	-30 inHg ... 100 psi
	BC	0 psi ... 15 psi (0 psi ... 15 psi absolute)
	BD	0 psi ... 30 psi
	BE	0 psi ... 60 psi
	BF	0 psi ... 100 psi (0 psi ... 100 psi absolute)
	BH	0 psi ... 200 psi
	BI	0 psi ... 300 psi
	DI	0 psi ... 500 psi
	BN	0 psi ... 1,000 psi
	BO	0 psi ... 1,500 psi
	BP	0 psi ... 2,000 psi
	BQ	0 psi ... 3,000 psi
	BS	0 psi ... 5,000 psi
	DQ	0 psi ... 6,000 psi
	DR	0 psi ... 7,500 psi
	DS	0 psi ... 8,000 psi
??	Other - please specify	
4	<b>Process connection</b>	
	85	G1B, flush diaphragm with O-ring (50 InWC to 25 psi)
	86	G1/2B, flush diaphragm with O-ring ( $\geq 30$ psi)
5	<b>Material of wetted parts</b>	
	B	Stainless steel and O-ring from EPDM
	L	Stainless steel and O-ring from Viton®
	?	Other- please specify
6	<b>Special design features</b>	
	Z	Without
	L	Low power <sup>1)</sup>
7	<b>Electrical connection</b>	
	2X	1/2" NPT male conduit with cable (NEMA 4X / IP 67)
	M4	4 Pin locking plug M12x1 (NEMA 4/IP67)
	??	Other- please specify

<b>N-11 Smart Codes for Custom Order Configurations (con'd)</b>		
Field no.	Code	Feature
<b>8</b>	<b>Cable length</b>	
	6	6 feet
	1	10 feet
	2	20 feet
	3	30 feet
<b>9</b>	<b>Approvals</b>	
	N	EEx nA II 3G T6 7 II 3D per ATEX (always with M4)
	F	FM, CSA (always with 2X)
<b>10</b>	<b>Quality certificates</b>	
	Z	Without
	I	NIST Certificate of Calibration
<b>11</b>	<b>Additional order details</b>	
	Z	Without
	T	Additional order details

1) Low power only available with 1-5 V signal output (supply 6 ...30 V)

Order Code:      1      2    3      4      5    6      7      8    9      10    11\*

**N-11** -  -  -  -  **G**  -

\*Additional order details \_\_\_\_\_