

TRANSDUCERS



- New models – NTS, NT110, NT41, NES, NESD, NTBT, and NTBT-DL
- Basic to highly customized models
- Hydraulic and pneumatic designs
- Models with accuracy ranges of 1%, .4% and .25%
- Vacuum ranges to 10,000 PSI
- IP69K seal available for the NT25, enabling high-pressure wash down capability
- Compact designs
- Custom outputs and ranges available
- Multiple industry applications

Specifications

Input

Supply Voltage	(B) 12 VDC to 36 VDC for 4 - 20 mA Output (C) 12 VDC to 30 VDC for 0 - 5 VDC Non-Ratio Metric Output (D) 12 VDC to 30 VDC for 0 - 10 VDC Non-Ratio Metric Output (K) 5.0 VDC +/- .5 VDC for 0.5 - 4.5 VDC Ratio Metric Output
Pressure Range	Vacuum to 5,800 PSI
Over Pressure	2x (8700 psi max)
Burst Pressure	0 – 750 psi = 3x, 750 – 5800 psi = 2.25x (max 8700)
Fatigue Life	More than 1 million cycles

Performance

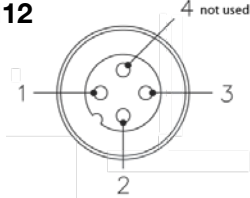
Accuracy	±1.0% of Span: from -20°C to 85°C (-4°F TO 185°F) FSC ±2.0% of Span: from -40°C to 100°C (-40°F TO 212°F) FSO outside of FSC
Stability	< 0.2% F.S.O./year
Response Time	< 1 mS
Compensated Temperatures	-20°C to 85°C (-4°F TO 185°F)
Operating Temperatures	-40°C to 100°C (-40°F TO 212°F)
Zero Output	0 ± 0.2 mV/V @ 25 °C
Vibration	15 g's, 10-2000 Hz
Shock	50g, 11ms, 1/2 sine

Mechanical Configuration

Pressure Port	¼ NPT (standard)**
Electrical Connection	M12, 9.4 Mini DIN, 3-pin Deutsch, 3-pin Packard, or cable out.
Sealing Rating	IP67 when used with M12 cable assembly
Wetted Parts	Brass or 316 stainless steel & elastomer

** See How to Order for options.

Electrical connections

Signal	Function	Color	Pin	Electrical Connector
4-20 mA	Supply V	Brown	1	M12 
	Output	Blue	3	
0-10V or 0.5-4.5V	Supply V+	Brown	1	
	Output	White	2	
	Com	Blue	3	
4-20 mA	Supply V	Red	1	
	Output	Black	2	
0-10V or 0.5-4.5V	Supply V+	Red	1	
	Com	Black	2	
	Output	White	3	



Features

- Totally digital proprietary design
- Innovative redundant sensing elements
- 24V digital output for pressure or temp switch point
- Voltage and current outputs
- Custom pressure ranges and outputs available
- More standard pressure ranges, industry first
- Optional 4x over pressure is available up to 5,000 PSI
- 0.25% accuracy
- ASIC technology, no zero/span potentiometers
- All stainless steel welded housing
- IP-69K rated seal available (high pressure wash down)
- Innovative low current consumption
- Programmable systems available for OEM/systems integrators for in-house configuring of outputs, ranges and set points to reduce inventory and lead times
- Calibration certificates available (contact customer service)

CE RoHS

Description

The NT25 Series digital/configurable is an industry first. This industrial pressure transducer features stability and accuracy over a wide temperature range. It is lower in cost than competitive units typically not found in older analog designs. It is also plug and play, which is not found in most lower-grade competitive units.

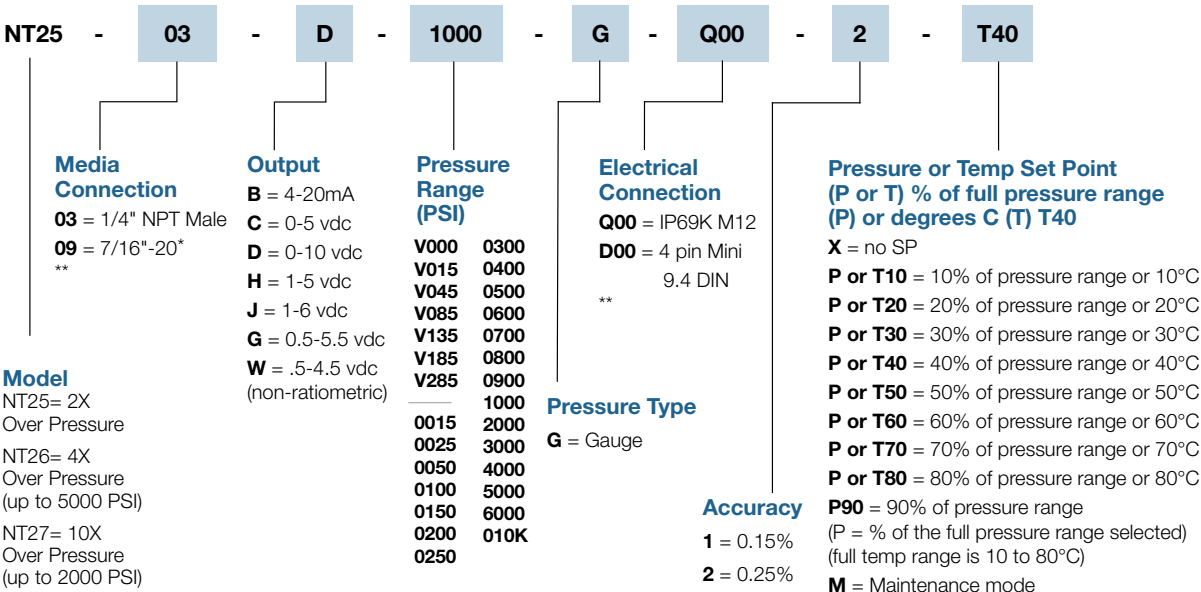
With its proprietary digital/ASIC technology, the NT25 Series features field-proven redundant sensing elements without the need for solder in resistors or trim pots that can drift over time. This provides years of excellent performance and reliability even in the harshest applications. This combined with optional

4x over pressure and the optional integrated temperature or pressure digital switch feature, makes the NT25 Series truly an industry first and second to none.

For extreme applications where power washers are used for wash down, the NT25 Series optional IP69K seal, another industry first, makes it ideal no matter what the environment.

With its flexible, low-power design and lower manufacturing costs, the NT25 Series offers outstanding value.

How to Order (Example: Part Number: **NT25 - 03 - D - 1000 - G - Q00 - 2 - T40**)



* For pressure 3000 PSI and higher only.

** Consult factory for further OEM options.

Specifications

Performance

Accuracy	Performance @ 25°C (77°F)
Overrange Protection	0.25% BFSL (includes: non-linearity, hysteresis and non-repeatability)
Pressure Range	2x Rated Pressure or optional 4x and 10x
Burst Pressure	see ordering chart - up to 6000 PSI (690 bar) (optional higher ranges available)
Pressure Cycles	5x or 20,000 PSI, whichever is less
Update Time	>100 million
Digital Output	<=1msec
	Optional digital output for pressure or temp switch point (not available on 4-20mA output units)

Environmental Data

Temperature	
Compensated Temperatures	-40° to 100°C (-40 to 212°F)
Operating Temperatures	-40° to 100°C (-40 to 212°F)
Storage	-40° to 125°C (-40° to 250°F)
Total Error Band (TEB)	0.9%
Stability	0.25% FS typical (1 year)
Shock	100g, 6 ms, 1/2 sine per EN 60068-2-27, EN 60068-2-29
Vibration	12g peak, 10 to 2000 Hz per EN60068-2-6, EN60068-2-64
EMI/RFI Protection	Yes
Rating	Up to IP-69K available (high pressure wash down)

Mechanical Configuration

Pressure Connections	See ordering chart
Wetted Material	17-4PH stainless steel (for other materials consult factory)
Electrical Connection	9.4 Din, IP-69K 4 pin M12 Connector
Case (housing)	304 stainless steel

Electrical Data

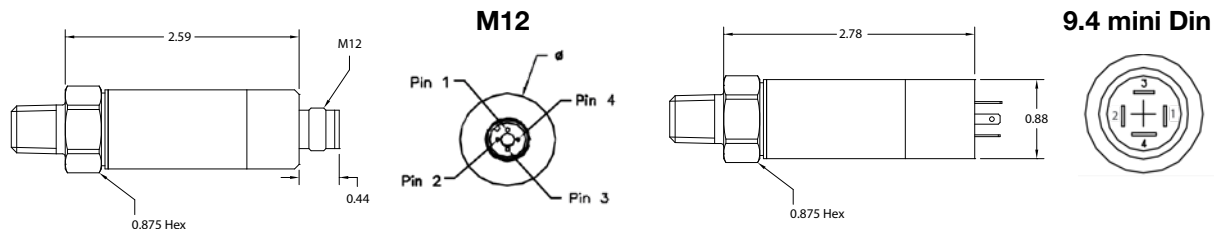
Excitation	4.0-28 VDC, Typ (must be at least 0.3V above full output voltage) (7.5 VDC min for 4-20mA)
Output	see ordering chart
Output Load	0-800 Ohms @ 10-28 VDC for current output 10K Ohms minimum for voltage outputs
Current Consumption	25mA max (current output), <5mA (voltage output) without digital output, <8mA with digital output
Output Noise	<2mV RMS
Reverse Polarity Protection	Yes
Zero Offset	1%
CE Approval	Yes. Shield must be attached to connector housing (not tested with cable lengths over 30 meters).

Set Point for Either Pressure or Temperature

For pressure, this is done by selecting a percentage of your transducer's full range and this will be the set point (40% of a 1000 PSI range will have the set point at 400 PSI) "P40". For temperature, simply select in degrees C where you want the set point to be (selecting 40°C will be represented by "T40" in the part number). The maintenance mode output indicates 1/2 bridge failure.

Maintenance Mode

Electrical Connections



NT25 M12 Pin Assignments

Voltage Units	Current Units
Pin 1 = - Power Supply	Pin 1 = + Power Supply
Pin 2 = Output	Pin 2 = N/C
Pin 3 = Common	Pin 3 = Output
Pin 4 = Digital Output (optional)	Pin 4 = N/C

NT25 9.4 Pin Assignments

Voltage Units	Current Units
Pin 1 = + Power Supply	Pin 1 = + Power Supply
Pin 2 = - Power Supply	Pin 2 = Output
Pin 3 = Output	Pin 3 = N/C
Pin 4 = Digital Output (optional)	Pin 4 = N/C



CE RoHS

Features

- Vacuum ranges to 10,000 PSI
- Various outputs
- Compact designs
- 316 stainless steel wetted parts
- Low cost
- Better 0.4% accuracy
- Custom outputs and ranges available
- OEM tested and approved

Application

- Hydraulic/mobile hydraulic
- Pneumatic systems
- Food and beverage Industry
- Refrigeration systems
- Pumps and compressors
- Energy and water management
- Construction and agricultural equipment

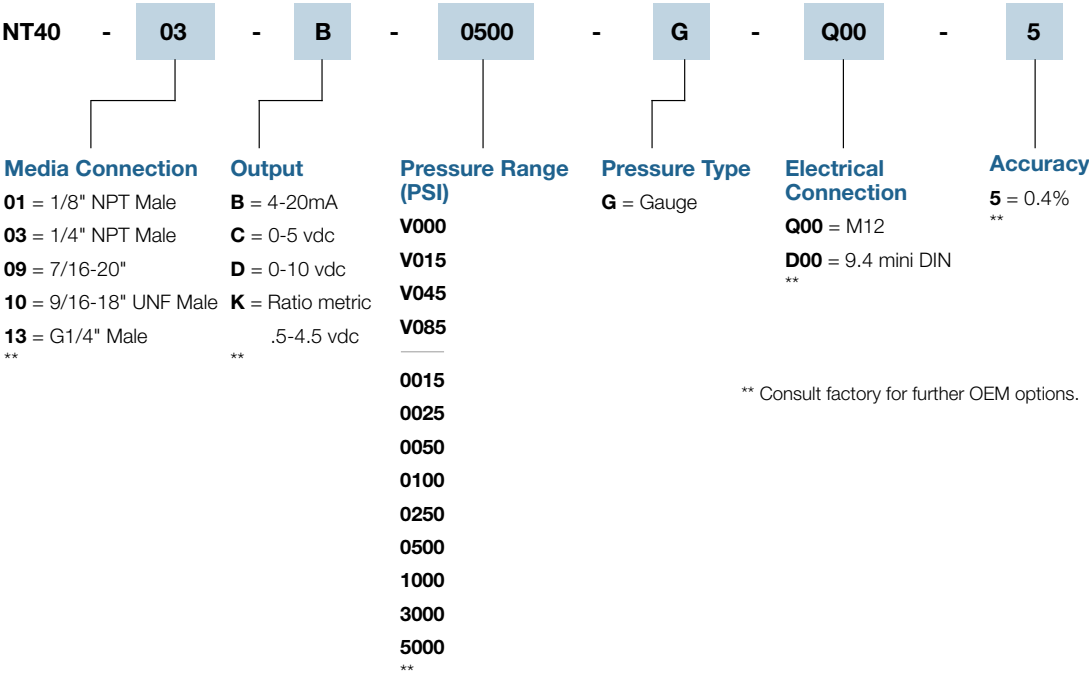
Description

The NT40 Series Pressure Transducer utilizes piezoresistance technology in an all stainless steel body. It is compact in size, has long term stability, is easy to install, and is very economical, as well as reliable.

The NT40 sets a new price-performance standard for low cost, high volume commercial and industrial applications.

How to Order (Example: Part Number: **NT40 - 03 - B - 0500 - G - Q00 - 5**)

Model



** Consult factory for further OEM options.

Specifications

Input

Supply Voltage	8-28 VDC 5 VDC (0.5-4.5V)
Pressure Range	VAC to 10,000 PSI
Proof Pressure	1.5 x full scale
Burst Pressure	3 x full scale
Fatigue Life	More than 4 million cycles

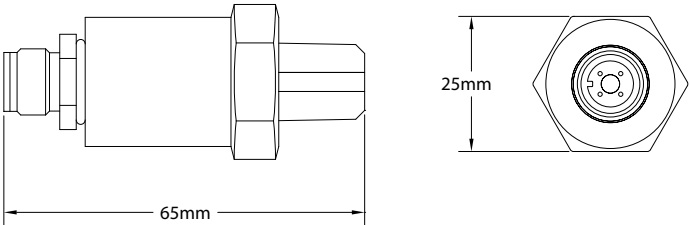
Performance

Accuracy	0.4%
Stability	0.2% full scale
Compensated Temperatures	-10 to 75°C (14 to 167°F)
Operating Temperatures	-20 to 80°C (-4 to 176°F)
Zero and Span Offset Tolerance	1.5%

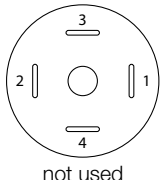
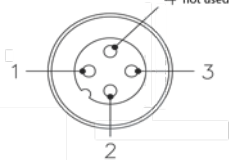
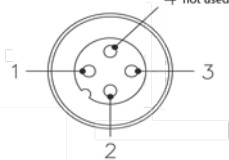
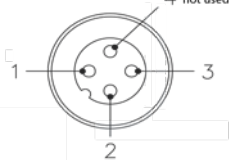
Mechanical Configuration

Pressure Port	1/4 NPT (standard) *
Electrical Connection	M12 *
Sealing Rating	IP67 when used with M12 cable assembly
Diaphragm Material	0-75 PSI = 316 SS • 100-1500 PSI = Ceramic • 2,000-10,000 PSI = 17 - 4 SS

For best performance, use shielded cables. Mating cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

Signal	Function	Color	Pin	Electrical Connector
0-5V	Supply V +	Red	1	DIN 4 pin (9.4) 
	Com	Black	2	
	Output	White	3	
4-20mA	Supply V	Red	1	M12 
	Output	Black	2	
0-5V	Supply V +	Black	1	M12 
	Output +	Red	2	
	Com	White	3	
4-20mA	Supply V +	Brown	1	M12 
	Output	Blue	3	



CE RoHS

Features

- Vacuum ranges to 285 PSI or 3 to 10,000 PSI
- Various outputs
- Compact designs
- 316 stainless steel housing
- All stainless steel wetted parts
- Low cost
- Better 0.4% accuracy
- Custom outputs and ranges available
- OEM tested and approved
- Low power consumption
- High 125°C (257°F) operating temperature

Application

- Hydraulic/mobile hydraulic
- Pneumatic systems
- Food and beverage Industry
- Refrigeration systems
- Pumps and compressors
- Energy and water management
- Construction and agricultural equipment

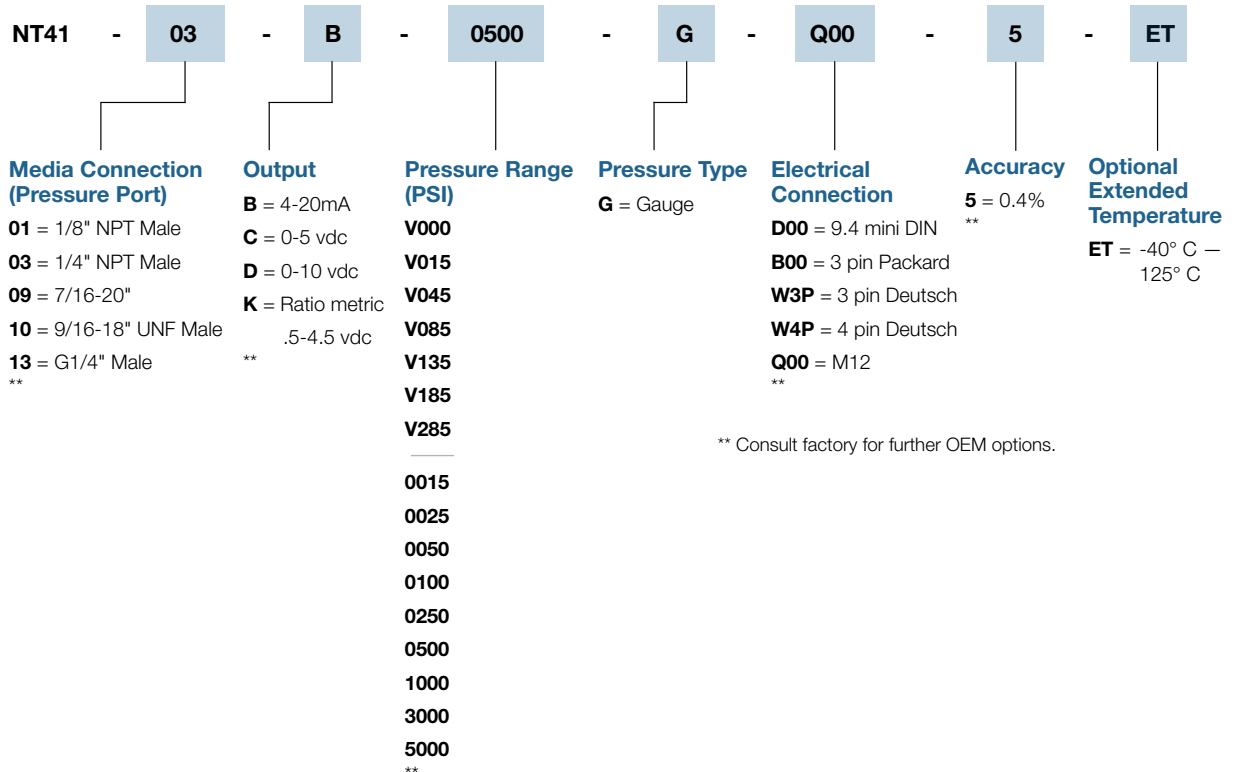
Description

The NT41 Series Pressure Transducer utilizes piezoresistance technology in an all stainless steel body. It is compact in size, has long term stability, is easy to install, and is very economical, as well as reliable.

The NT41 sets a new price-performance standard for low cost, high volume commercial and industrial applications.

How to Order (Example: Part Number: **NT41 - 03 - B - 0500 - G - Q00 - 5 - ET**)

Model



** Consult factory for further OEM options.

Specifications

Input

Supply Voltage	8-28 VDC 5 VDC (0.5-4.5V)
Pressure Range	VAC to 10,000 PSI
Proof Pressure	3 — 6,000 PSI = 3x 6,000 — 10k PSI = 2x
Burst Pressure	3 — 6,000 PSI = 4x 6,000 — 10k PSI = 3x
Fatigue Life	More than 4 million cycles

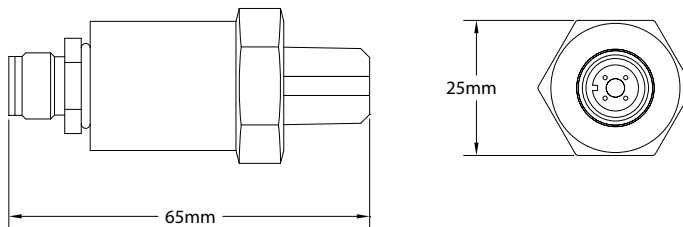
Performance

Accuracy	0.4%
Stability	0.2% full scale
Compensated Temperatures	-10 to 100°C (14 to 212°F)
Operating Temperatures	-20 to 125°C (-4 to 257°F)
Zero and Span Offset Tolerance	1.5%

Mechanical Configuration

Pressure Port	1/4 NPT (standard) *
Electrical Connection	M12*, 3 pin Deutsch, 4 pin Deutsch
Sealing Rating	IP67 when used with M12 cable assembly
Wetted Parts	316 stainless steel

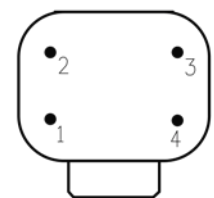
For best performance, use shielded cables. Mating cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

Signal	Function	Color	Pin	Electrical Connector
0-5V	Supply V +	Brown	1	M12
	Output +	White	2	
	Com	Blue	3	
4-20mA	Supply V	Brown	1	
	Output	Blue	3	

x4	Pin1	Pin2	Pin3	Pin4
mA	Output+	Supply+	N/C	N/C
V	COM	Supply+	N/C	Output+



Transducer View
Deutsch DT04-4P



CE RoHS

Features

- Vacuum ranges to 10,000 PSI
- Various outputs
- Compact designs
- 316 stainless steel wetted parts
- Low cost
- Industrial 1% accuracy
- Custom outputs and ranges available
- OEM tested and approved

Application

- Hydraulic/mobile hydraulic
- Pneumatic systems
- Food and beverage industry
- Refrigeration systems
- Pumps and compressors
- Energy and water management
- Construction and agricultural equipment

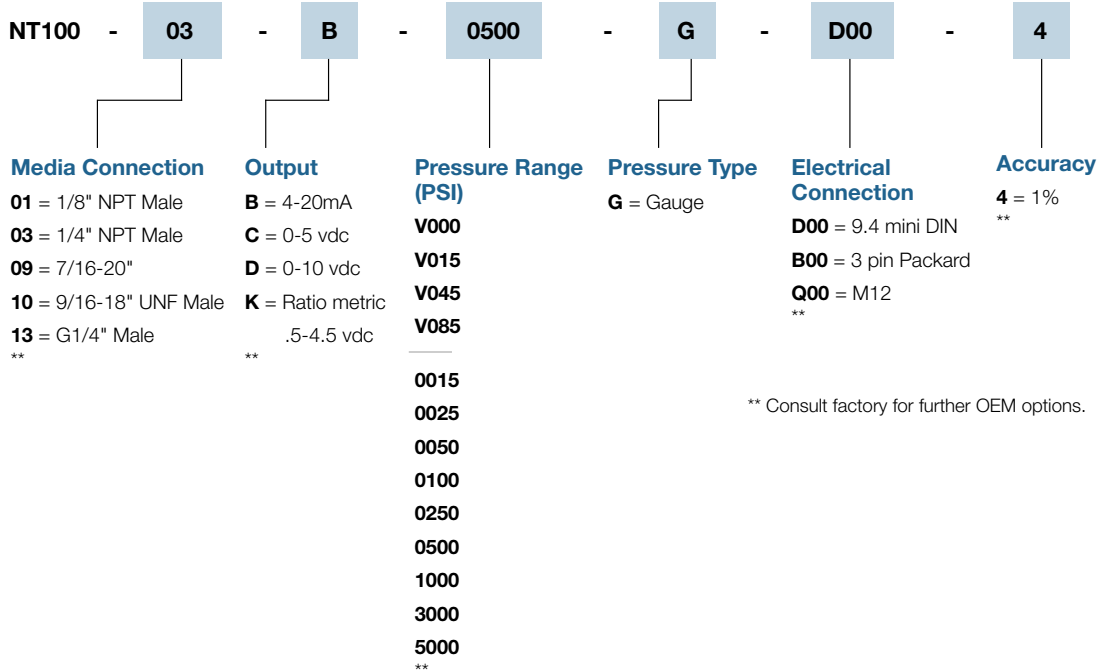
Description

The NT100 Series Pressure Transducer utilizes piezoresistance technology in an all stainless steel body. It is compact in size, has long term stability, is easy to install, and is very economical, as well as reliable.

The NT100 sets a new price-performance standard for low cost, high volume commercial and industrial applications.

How to Order (Example: Part Number: **NT100 - 03 - B - 0500 - G - D00 - 4**)

Model



** Consult factory for further OEM options.

Specifications

Input

Supply Voltage	8-28 VDC
	5 VDC (0.5-4.5V)
Pressure Range	VAC to 10,000 PSI
Proof Pressure	1.5 x full scale
Burst Pressure	3 x full scale
Fatigue Life	More than 4 million cycles

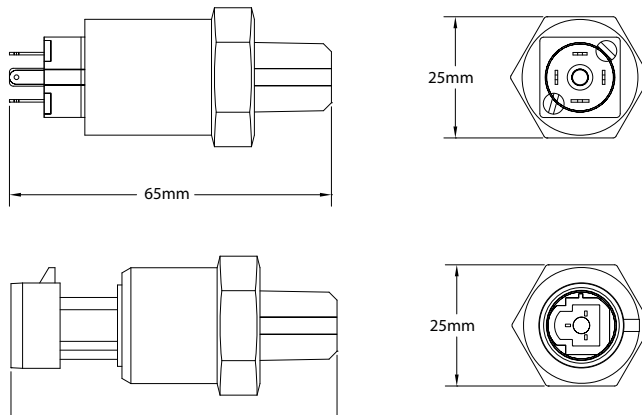
Performance

Accuracy	1%
Stability	0.2% full scale
Compensated Temperatures	-10 to 75°C (14 to 167°F)
Operating Temperatures	-20 to 80°C (-4 to 176°F)
Zero and Span Offset Tolerance	1.5%

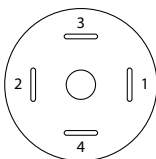
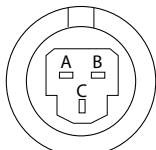
Mechanical Configuration

Pressure Port	1/4 NPT (standard) *
Electrical Connection	9.4 mini DIN, 3 pin Packard *
Sealing Rating	IP65 with standard 9.4 DIN cable
Wetted Parts	316 stainless steel

For best performance, use shielded cables. Mating cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

Signal	Function	Color	Pin	Electrical Connector
0-5V	Supply V +	Red	1	DIN 4 pin (9.4) 
	Com	Black	2	
	Output	White	3	
	N/A	N/A	4	
4-20mA	Supply V	Red	1	
	Output	Black	2	
0-5V	Com	-	A	3 pin Packard 
	Supply +	-	B	
	Output +	-	C	
4-20mA	Output	-	A	
	Supply +	-	B	



CE RoHS

Features

- Vacuum ranges to 285 PSI or 3 to 10,000 PSI
- Various outputs
- Compact designs
- 316 stainless steel housing
- All stainless steel wetted parts
- Low cost
- Industrial 1% accuracy
- Custom outputs and ranges available
- OEM tested and approved
- Low power consumption
- High 125°C (257°F) operating temperature

Application

- Hydraulic/mobile hydraulic
- Pneumatic systems
- Food and beverage industry
- Refrigeration systems
- Pumps and compressors
- Energy and water management
- Construction and agricultural equipment

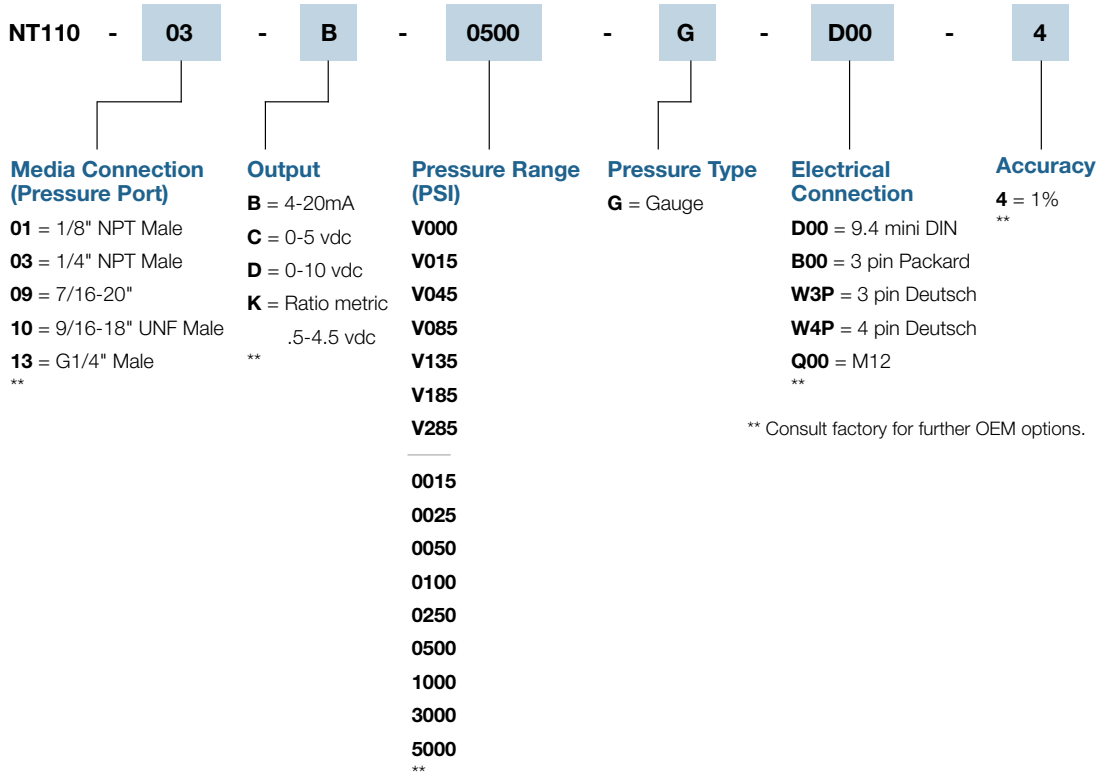
Description

The NT110 Series Pressure Transducer utilizes piezoresistance technology in an all stainless steel body. It is compact in size, has long term stability, is easy to install, and is very economical, as well as reliable.

The NT110 sets a new price-performance standard for low cost, high volume commercial and industrial applications.

How to Order (Example: Part Number: **NT110 - 03 - B - 0500 - G - D00 - 4**)

Model



** Consult factory for further OEM options.

Specifications

Input

Supply Voltage	8-28 VDC 5 VDC (0.5-4.5V)
Pressure Range	VAC to 285 PSI or 3 to 10,000 PSI
Proof Pressure	3 — 6,000 PSI = 3x 6,000 — 10k PSI = 2x
Burst Pressure	3 — 6,000 PSI = 4x 6,000 — 10k PSI = 3x
Fatigue Life	More than 4 million cycles

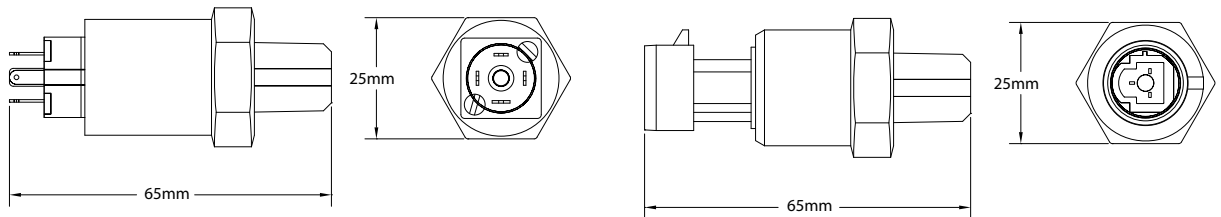
Performance

Accuracy	1% FS, BFSL
Stability	0.2% full scale
Compensated Temperatures	-10 to 100°C (14 to 212°F)
Operating Temperatures	-20 to 125°C (-4 to 257°F)
Zero and Span Offset Tolerance	1.5%
Current Consumption	Approx 3mA for voltage output, 22mA for current output (4-20mA)
Shock	50g, 11ms, 1/2 sign
Vibration	11g peak from 10 to 400 Hz

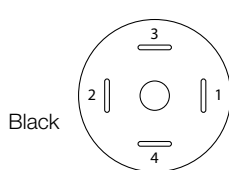
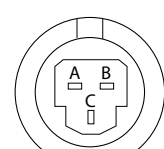
Mechanical Configuration

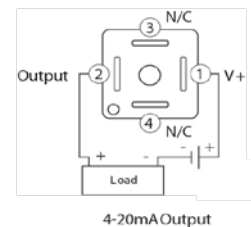
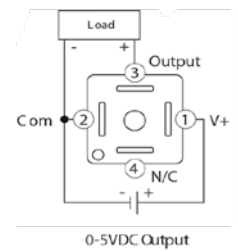
Pressure Port	1/4 NPT (standard) *
Electrical Connection	9.4 mini DIN, 3 pin Packard *
Ingress Rating	IP65 with standard 9.4 DIN cable
Housing	316 stainless steel
Diaphragm Material	316 SS <1500 psi, 17-4 SS >1500 PSI, wetted parts are SS, no internal O-Rings
Approvals	CE

For best performance, use shielded cables. Mating cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

Signal	Function	Color	Pin	Electrical Connector
0-5V	Supply V +	Red	1	DIN 4 pin (9.4) 
	Com	Black	2	
	Output	White	3	
	N/A	N/A	4	
4-20mA	Supply V	Red	1	
	Output	Black	2	
0-5V	Com	Black	A	3 pin Packard 
	Supply +	Red	B	
	Output +	White	C	
4-20mA	Output	Black	A	
	Supply +	Red	B	





Features

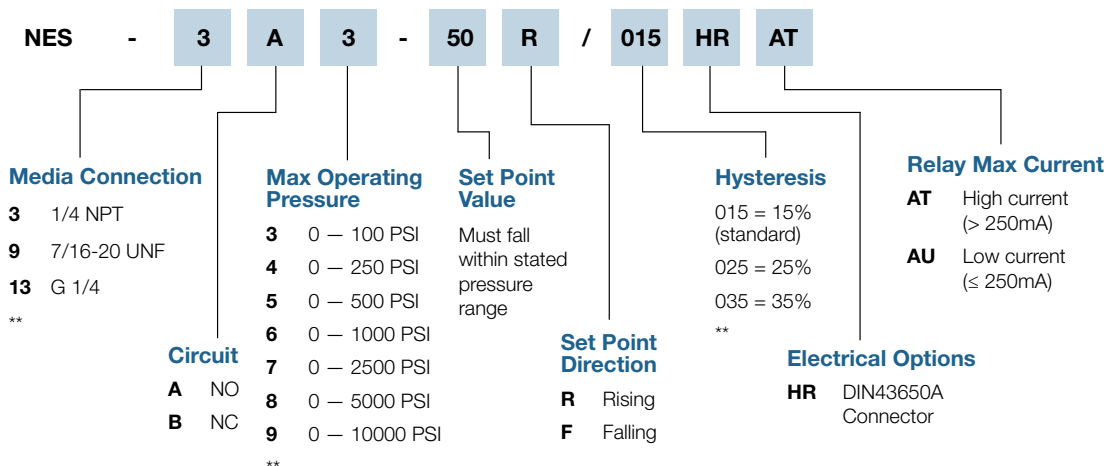
- **Operating temperature:** -40° C to 90° C
- **Power supply:** 9 VDC to 28 VDC
- **Power supply current:** 35mA maximum
- **Relay output:** 250 VAC/220 VDC, 10A maximum
- **Relay type:** normally open or normally closed
- **Media connection:** 1/4" NPT standard
(consult factory for other options)
- **Pressure ranges:** up to 10,000 PSI
- **Set point and hysteresis:** factory programmable
- **UL recognized component**

Description

The NES Electronic Pressure Switch Digital Technology brings a new level of performance to the pressure switch world. The NES features a solid stainless steel long life header/diaphragm for demanding applications where o-rings and creeper compatibility are a thing of the past. The NES houses the proprietary redundant

bridge circuit for high-shock and high-vibration environments making it ideal for off road/mobile hydraulic applications where downtime is not an option. These industry firsts combined with the factory programmable set-point and hysteresis allows for low-cost custom solutions with next day shipments.

How to Order (Example: Part Number: **NES - 3A3 - 50R / 015 HR AT**)



Pressure ranges and outputs listed above are quick ship versions.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use. While we provide application assistance personally, through our literature and the Nelson website, it is up to the customer to determine the suitability of the product in the application.

Specifications

Performance

Accuracy:	0.5% of max operating pressure (see ordering code)
Overage Protection:	2x Rated Pressure and optional 4x
Pressure Range:	see ordering chart
	- up to 10,000 PSI (689 bar)
Burst Pressure:	5x or 20,000 PSI,
	whichever is less
Relay Life:	>2 million @ 100mA at 240 VAC, Typ*
Update Time:	≤1msec
Relay Output:	250 VAC/220 VDC, up to 5A standard 10A Max
Relay Max Current:	Low Current ≤ 250mA,
	High Current > 250mA,
	10A Max (increased current results in reduced lifecycle*)

Environmental Data

Compensated Temperatures:	-40° to 90° C (-40° to 194° F)
Operating Temperatures:	-40° to 90° C (-40° to 194° F)
Storage:	-40° to 125° C (-40° to 250° F)
TEB:	1% of max operating pressure (see ordering code)
Long Term Drift:	0.2% FS/year (non-cumulative)
Shock:	2g, 11 ms, 1/2 sine
Vibration:	4g, peak, 30 to 400 Hz
EMI/FRI Protection:	Yes
Rating:	IP65
Approvals:	UL (approved connector, max ambient temperature at 55° C for L relay version; max ambient temperature at 20° C for H relay version)

Mechanical Configuration

Media Connection:	1/4" NPT Male (standard)
Wetted Material:	17-4PH stainless steel
Electrical Connection:	Large DIN
Case:	(housing) 304 stainless steel/polycarbonate plastic

Electrical Data

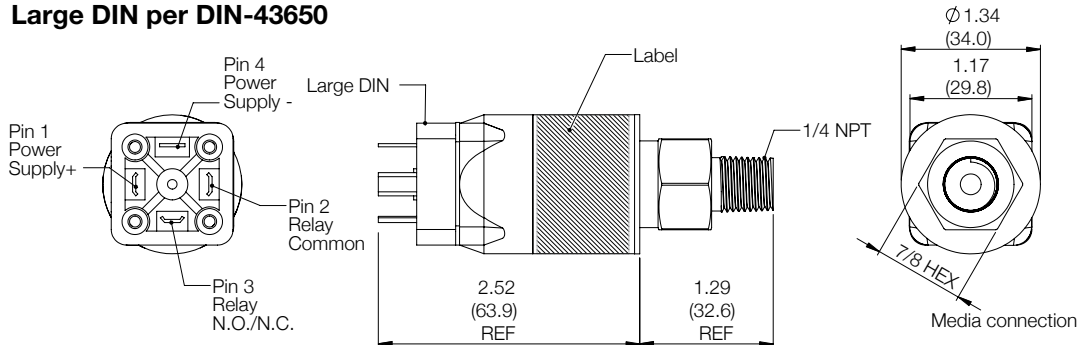
Excitation:	9-28 VDC, Typ
Output:	Relay output
Current Consumption:	35mA max
Reverse Polarity Protection:	Yes
Set Points:	No set points in vacuum range, 5 PSI Min set point with <100 PSI, 10% of configured pressure min set point >100 PSI range

Mating connectors and cable assemblies sold separately.

*Refer to relay datasheet for lifecycle information: TE connectivity, high current relay, product code PB114024, part number 9-1415029-1.

Electrical Connections

Large DIN per DIN-43650



Large DIN per DIN-43650

Pin 1:	Power supply +: 9 VDC to 28 VDC
Pin 2:	Relay common
Pin 3:	Relay N.O./N.C.
Pin 4:	Power supply -

Dimensions are in inches (mm) and for reference only.



Features

- **Compensated temperature:** -40° C to 85° C
- **Operating temperature:** -40° C to 100° C
- **Power supply:** 10.5 VDC to 28 VDC
- **Display:** 4-digit, bi-color display (red or green)
- **Outputs:** Digital : 250 mA max (PNP) or 200 mA max (NPN), or optional analog output: up to 10.5 VDC or up to 28 VDC (field selectable)
- **Media connection:** 1/4" NPT, 7/16-20 UNF, G 1/4
- **Pressure ranges:** Wide variety up to 10K psig

Description

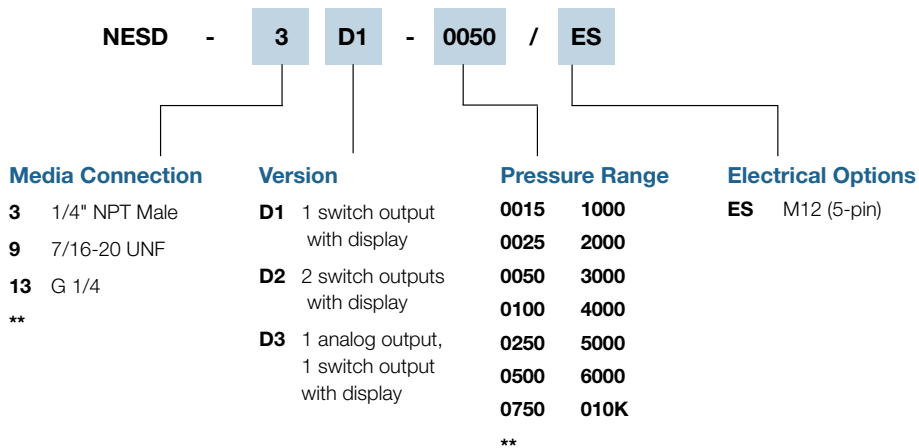
What makes the NESD model stand apart is the unique LED display - which allows for 360° scrolling, or you can lock the display in one location. It also features field-programmable set points and hysteresis.

The NESD model incorporates redundant sensing technology, allowing for notification that

the sensor needs to be replaced before it might fail (maintenance mode), eliminating operational downtime.

The NESD model pressure switch/transducer comes standard with one digital output (NPN or PNP), optional analog output, operates from 10.5 to 28 VDC, and is IP67 certified.

How to Order (Example: Part Number: **NESD - 3D1 - 0050/ES**)



** Consult factory for further OEM options. Pressure ranges and outputs listed above are quick ship versions.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use. While we provide application assistance personally, through our literature and the Nason website, it is up to the customer to determine the suitability of the product in the application.

Specifications

Performance

Accuracy:	Performance @ 25° C (77° F) 0.5% of max operating pressure
Overrange Protection:	2x Rated Pressure or optional 4x and 10x
Pressure Range:	see ordering chart - up to 10,000 PSI (689 bar)
Burst Pressure:	5x or 20,000 PSI, whichever is less
Pressure Cycles:	>100 million
Update Time:	≤1msec

Environmental Data

Compensated Temperatures:	-40° to 85° C (-40° to 185° F)
Operating Temperatures:	-40° to 100° C (-40° to 212° F)
Storage:	-40° to 125° C (-40° to 257° F)
TEB:	1% BFSL (includes: Non-linearity, Hysteresis and Non-repeatability)
Long Term Drift:	0.2% FS/year (non-cumulative)
Shock:	50g, 11 ms, 1/2 sine
Vibration:	10g, peak, 20 to 2400 Hz
EMI/FRI Protection:	Yes
Rating:	Up to IP67

Mechanical Configuration

Pressure Connections:	1/4" NPT Male, 7/16-20 UNF, G1/4 Male
Wetted Material:	17-4PH stainless steel (for other materials consult factory)
Electrical Connection:	M12 (5-pin)
Case:	(housing) 304 stainless steel and high-impact polycarbonate (display)

Electrical Data

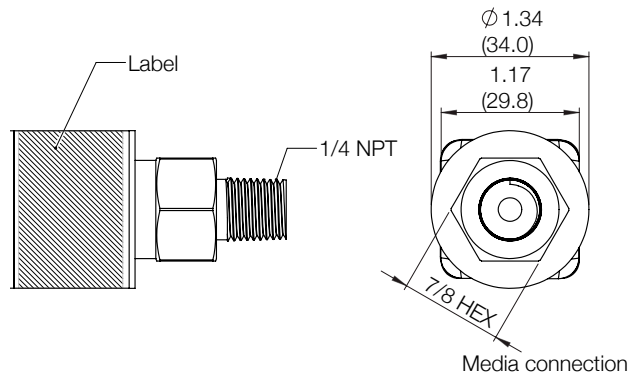
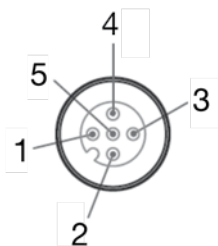
Power Supply:	10.5-28VDC
Output:	10.5 VDC to 28 VDC at 250 mA max (PNP) or 200 mA max (NPN) (digital)
Field Programmable:	up to 10 VDC or up to 20 mA (analog)
Output Impedance:	<100 Ohms, Nominal
Current Consumption:	30 mA at 24V/voltage output 40 mA at 12V/voltage output 50 mA at 24V/voltage output 60 mA at 12V/voltage output
Output Noise:	<2mV RMS
Reverse Polarity Protection:	Yes

For best performance use shielded cables.

Mating connectors and cable assemblies sold separately.

Electrical Connections

5-Pin M12



5-Pin M12

Pin 1:	Power supply: 10.5 VDC to 28 VDC
Pin 2:	Digital output #2 (optional) or analog output (optional)
Pin 3:	Power supply common
Pin 4:	Digital output #1
Pin 5:	Maintenance mode output

Dimensions are in inches (mm) and for reference only.



Features

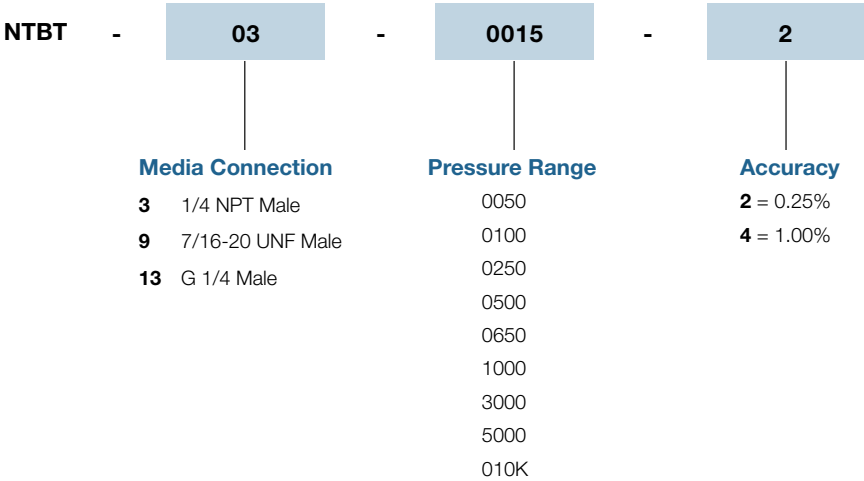
- Connects to smartphones and tablets with BLE (Bluetooth® Low Energy)
- Certified Bluetooth® wireless technology
- Pressure ranges from vacuum to 10,000 psi
- Long battery life (proprietary technology)
- 1% standard accuracy with optional 0.25% ultra high accuracy
- Stainless steel and high-impact polycarbonate construction
- Alarm set points
- Secure field programmable naming
- Patent-pending design
- Schrader, NPT, SAE and G ¼ pressure connection

Description

Another industry first! The first Bluetooth®-certified wireless pressure transducer with long battery life and patent-pending design makes the NTBT a perfect fit for many applications for Industrial and Home Automation. Download the free app, install the transducer and wirelessly connect — no confusing wiring to figure out.

Choose the NTBT for virtually anywhere you'd like to monitor pressure without the use of wires — from pneumatic systems, mobile hydraulics, residential and commercial applications to water, hydraulic, irrigation, pools, medical and sprinkler systems. Because it is built on Nason proprietary technology, the NTBT ensures high quality and high accuracy with Nason's quick deliveries and low costs.

How to Order (Example: Part Number: **NTBT - 03 - 0015 - 2**)



Specifications

Performance

Pressure Accuracy:	Performance @ 25° C (77° F) 0.25% or 0.2 psi, whichever is greater, 1% BFSL (includes non-linearity, hysteresis, non-repeatability)
Overage Protection:	2x Rated Pressure
Pressure Range:	see ordering chart - up to 10,000 psi (690 bar)
Burst Pressure:	5x or 20,000 psi, whichever is less
Pressure Cycles:	>100 million
Update Time:	Bluetooth® wireless technology (1sec)

Environmental Data

Compensated Temperatures:	-10° to 85° C (14 to 185° F)
Operating Temperatures:	-40° to 85° C (-40° to 185° F)
Storage:	-40° to 125° C (-40° to 257° F) without battery
TEB:	3% BFSL (includes: Non-linearity, Hysteresis and Non-repeatability)
Long Term Drift:	0.2% FS/year (non-cumulative)
Shock:	50g, 11 ms, 1/2 sine
Vibration:	10g, peak, 20 to 2400 Hz
EMI/FRI Protection:	Yes
Ingress Rating:	IP-67

Mechanical Configuration

Pressure Connection:	1/4 NPT Male, 7/16-20 UNF Male, G1/4 Male
Wetted Material:	17-4PH stainless steel (for other materials consult factory)
Case:	(housing) 304 stainless steel and high-impact polycarbonate I

Electrical Data

Power Supply:	3.6V Proprietary replacement battery. Battery life: 24 months, typical. Battery life is affected by high and low temperatures.
Battery Removal:	If the battery pack is removed, you must wait 90 seconds to reinstall or unit may lock up.
Connection Distance:	250 feet (line of sight)
Compatible Devices:	Software: Android - (Version 4.3 or later) iOS - (Current version and previous one) Hardware: Android - Device supports Bluetooth Smart (Version 4.0 and later) iPad Gen 3 - (released March 16, 2012) iPad Gen 4 - (released November 2, 2012) iPad Mini Gen 1 - (released November 2, 2012) iPad Mini Gen 2 - (released November 12, 2013) iPad Air - (released November 1, 2013) iPhone 5 - (released September 21, 2012) iPhone 5C, 5S - (released September 20, 2013) iPhone 6, 6 Plus - (released September 19, 2014) iPhone 6S, 6S plus - (released Sept 25 2015) iPhone 7, 7 plus - (released Sept 16, 2016) iPhone 8, 8 plus iPhone X, Xs, Xs Max

Features

- Connects to smartphones and tablets with BLE (Bluetooth® Low Energy)
- Certified Bluetooth® wireless technology
- Pressure ranges from vacuum to 10,000 psi
- Long battery life (proprietary technology)
- 1% standard accuracy with optional 0.25% ultra high accuracy
- Stainless steel and high-impact polycarbonate construction
- Alarm set points
- Secure field programmable naming
- Patent-pending design
- Number of individual logs: from 15,872 to 32,768
- Email logged files from the **FREE** app



Description

Another Industry First! The first Bluetooth® certified wireless pressure transducer with long battery life and patent- pending design makes the NTBT-DL a perfect fit for many applications for Industrial and Home Automation. The NTBT-DL includes data logging capability to save pressure and temperature data that can be emailed and opened in an excel spread sheet. Download the free app, install the transducer and wirelessly connect - no confusing wiring to figure out.

From HVAC in marine, campers, motorhomes, residential and commercial applications to water, hydraulic, irrigation, pools, medical and sprinkler systems or anywhere you need to monitor pressure without the need of wires.

Because it is built on Nason proprietary technology, the NTBT-DL ensures high quality and high accuracy with quick deliveries, and low costs.

How to Order (Example: Part Number: **NTBT-DL - 03 - 0500 - 2 - T24**)

<p>NTBT-DL - 03 - 0500 (psi) - 2 - T24</p>	<p>Pressure Connection 03 = 1/4" NPT Male 09 = 7/16- 20 UNF Male 13 = G1/4 Male 42 = 7/16-20 UNF Female w/ 45° flare & valve depressor (Schrader) **</p>	<p>Pressure Range 0050 0100 0250 0500 0650 1000 3000 5000 010K **</p>	<p>Accuracy 2 = 0.25% 4 = 1.00%</p>	<p>M5 / Temperature Probe (BLANK) = No M5 connector (not temp probe capable) T24 = 24" cable with M5 mating connector and external temperature probe M5 = M5 connector alone (temp probe capable) **</p>
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** - Consult factory for further OEM options.
 Pressure ranges listed above are quick ship versions.
 All straight-thread o-rings are Viton. It is customer's responsibility to determine compatibility.

Specifications

Performance

Pressure Accuracy:	Performance @ 25° C (77° F) 0.25% or 0.2 psi, whichever is greater, 1% BFSL (includes non-linearity, hysteresis, non-repeatability)
Temperature Accuracy:	±1° C
Overrange Protection:	2x Rated Pressure
Pressure Range:	see ordering chart - up to 10,000 psi (690 bar)
Burst Pressure:	5x or 20,000 psi, whichever is less
Pressure Cycles:	>100 million
Update Time:	Bluetooth® wireless technology (1sec)

Environmental Data

Compensated Temperatures:	-10° to 85° C (14 to 185° F)
Operating Temperatures:	-40° to 85° C (-40° to 185° F)
Storage:	-40° to 125° C (-40° to 257° F) without battery
TEB:	3% BFSL (includes: Non-linearity, Hysteresis and Non-repeatability)
Long Term Drift:	0.2% FS/year (non-cumulative)
Shock:	50g, 11 ms, 1/2 sine
Vibration:	10g, peak, 20 to 2400 Hz
EMI/FRI Protection:	Yes
Ingress Rating:	IP-67
Approvals:	CE

Mechanical Configuration

Pressure Connection:	1/4 NPT Male, 7/16-20 UNF Male, G1/4 Male, 7/16-20 UNF Female w/45° flare & valve depressor
Wetted Material:	17-4PH stainless steel (for other materials consult factory)
Case:	(housing) 304 stainless steel and high-impact polycarbonate I

Electrical Data

Power Supply:	3.6V Proprietary replacement battery. Battery life: 24 months, typical. Battery life is affected by high and low temperatures.
Battery Removal:	If the battery pack is removed, you must wait 90 seconds to reinstall or unit may lock up.
Connection Distance:	250 feet (line of sight)
Compatible Devices:	Software: Android - (Version 4.3 or later) iOS - (Current version and previous one) Hardware: Android - Device supports Bluetooth Smart (Version 4.0 and later) iPad Gen 3 - (released March 16, 2012) iPad Gen 4 - (released November 2, 2012) iPad Mini Gen 1 - (released November 2, 2012) iPad Mini Gen 2 - (released November 12, 2013) iPad Air - (released November 1, 2013) iPhone 5 - (released September 21, 2012) iPhone 5C, 5S - (released September 20, 2013) iPhone 6, 6 Plus - (released September 19, 2014) iPhone 6S, 6S plus - (released Sept 25 2015) iPhone 7, 7 plus - (released Sept 16, 2016) iPhone 8, 8 plus iPhone X, Xs, Xs Max

Data Logging

Measurement Intervals:	From 50ms up to 1hr Fill Until Full: 50ms, 500ms, 1 sec, 5 sec, 10 sec, 30 sec, 1 min, 5 min, 10 min, 20 min, 30 min, 1 hr, 1 day FIFO: 500ms, 1 sec, 5 sec, 10 sec, 30 sec, 1 min, 5 min, 10 min, 20 min, 30 min, 1 hr, 1 day
Recording Temperature:	External temperature probe required to record temperature data
Storage Modes:	Fill Until Full: When memory is full, recording will stop FIFO (First in/First out): When memory is full, recording will start over from the beginning replacing the first recordings with the latest moving forward

Specifications

Input

Supply Voltage / (Output): 8-28 VDC (0-5V, 4-20mA)
 5 VDC (0.5-4.5V)
 12-36 VDC (0-10V)

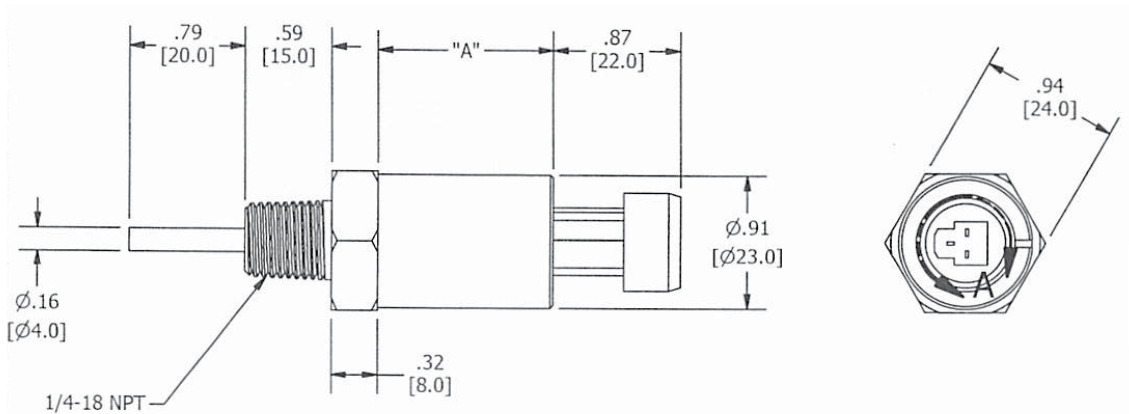
Performance

Accuracy: 1% FS
 Stability: 0.2% FS
 Measuring Temperature Range: -40 to 200° C (-40 to 392° F)
 Operating Temperature Range: -40 to 85° C (-40 to 185° F)
 Max Continuous Temperature: 250° F
 Current Consumption: 23mA for 4-20mA
 8mA for 0-5V
 11mA for 0-10V
 Max Pressure for 6 mm Diameter Probe: 300 bar
 Max Pressure for 8 mm Diameter Probe: 500 bar

Mechanical Configuration

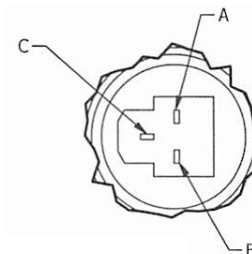
Probe Lengths: 10mm, 20mm, 40mm, 50mm, 100mm, 150mm
 Process Connection: ¼ NPT (standard) *
 Electrical Connection: 4-pin M12 *
 Ingress Rating: IP67 with standard M12 cable
 Housing: 304 stainless steel
 Wetted Parts: 316SS

For best performance, use shielded cables. Mating cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

Output	Signal	Function	Pin
K	0.5-4.5V	Com	A
C	0-5V	Supply V +	B
D	0-10V	Output +	C
B	4-20mA	Output	A
		Supply V +	B



NOTES: 1. "A" dimension = 1.20 [30.5] when temp rating is less than 200°F.
 2. "A" dimension = 1.70 [43.2] when temp rating is greater than 200°F.

Specifications

Input

Supply Voltage / (Output):	3-5.5VDC (OWI)	12-32VDC (0-10VDC,1-6VDC)
	9-32VDC (4-20mA)	5VDC (0.5-4.5VDC ratiometric)
	7-32VDC (0-5VDC)	7-32VDC (0.5-4.5VDC NONratiometric)
Pressure Range:	Vac to 285 psi or pressure 0-3 psi, up to 10,000 psi	
Proof Pressure:	3-6000 psi = 3x • 6000-10K psi = 2x	
Burst Pressure:	3-6000 psi = 4x • 6000-10K psi = 3x	
Fatigue Life:	More than 4 million cycles	
Approvals:	CE	

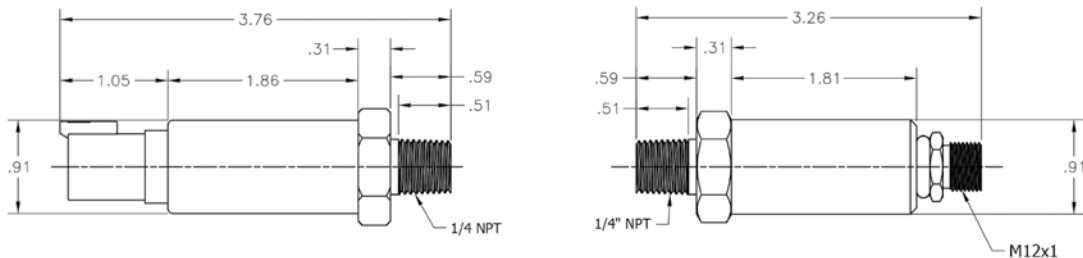
Performance @ 25°C (77 °F)

Accuracy:	0.4% FS, BFSL (includes non-linearity, hysteresis and non-repeatability)
Stability:	0.2% FS
Thermal Error:	1.0% FS
Compensated Temperatures:	Pressure (-40) to 125° C
Temperature measurement range:	Temperature (-40) to 120° C
Operating Temperatures:	(-40) to 125° C
Current Consumption:	23mA (4-20mA), 5mA(OWI), 8mA(0-5V,1-6V), 11mA(0-10V)
Temp probe max pressure:	Equal to the pressure sensor (without extended temp probe), or 300bar (with extended 6mm probe)
Zero and Span Offset Tolerance:	1.5%
Shock:	50g, 11ms, 1/2 sign
Vibration:	11g peak from 10 to 400 Hz
Reverse Polarity Protection:	Yes

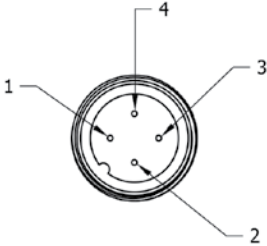
Mechanical Configuration

Pressure Port:	¼ NPT (standard) *
Electrical Connection:	M12, 3 & 4 pin Deutsch (DT04-3P/4P),9.4 DIN, 3pin Packard
Ingress Rating:	IP67
Housing:	316 stainless steel
Diaphragm Material:	316L SS <1500 psi, 17-4 SS 1500 psi and above, wetted parts are SS, no internal o-rings

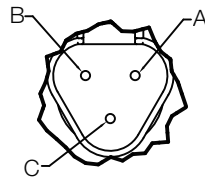
For best performance, use shielded cables. Mating connectors and cable assemblies sold separately. * Consult factory for further OEM options.



Electrical Connections

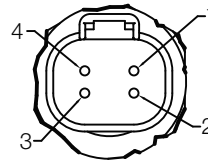
Signal	Function	Pin	Electrical Connector
0-5V	Supply V +	1	M12 
	Output 1	2	
	Com	3	
	Output 2	4	
4-20mA	Supply V +	1	
	Output 1	2	
	Output 2	3	
	N/C	4	

W3P Connector



ELECTRICAL CONNECTIONS		
SIGNAL	FUNCTION	PIN
0-5V	SUPPLY V	A
	OUTPUT +	B
	COM	C
4-20mA	SUPPLY V	A
	OUTPUT +	B

W4P Connector



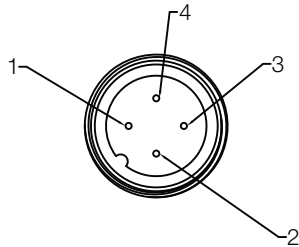
ELECTRICAL CONNECTIONS		
SIGNAL	FUNCTION	PIN
0-5V	COM	1
	SUPPLY V+	2
	N/C	3
	OUTPUT +	4
4-20mA	OUTPUT +	1
	SUPPLY +	2
	N/C	3
	N/C	4

3 PIN Packard Connector for B00 Option



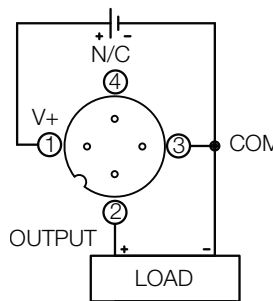
ELECTRICAL CONNECTIONS		
SIGNAL	FUNCTION	PIN
0-5V	COM	A
	SUPPLY +	B
	OUTPUT +	C
4-20mA	OUTPUT	A
	SUPPLY +	B

M12 4 PIN Connector for Q00 Option

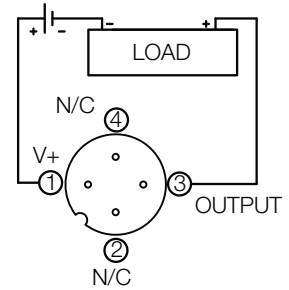


ELECTRICAL CONNECTIONS		
SIGNAL	FUNCTION	PIN
0-5V	SUPPLY V+	1
	OUTPUT	2
	COM	3
	N/C	4
4-20mA	SUPPLY V+	1
	N/C	2
	OUTPUT	3
	N/C	4

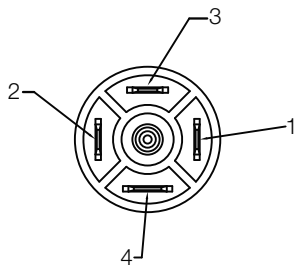
0-5VDC OUTPUT



4-20mA OUTPUT

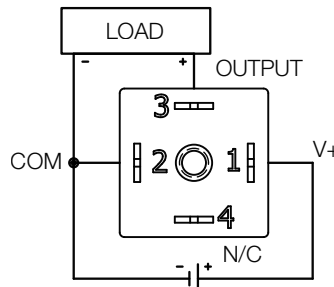


9.4 DIN Connector for D00 Option

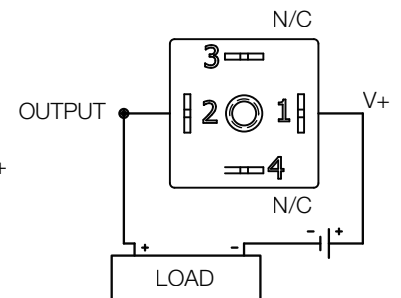


ELECTRICAL CONNECTIONS			
SIGNAL	FUNCTION	COLOR	PIN
0-5V	+POWER SUPPLY	RED	1
	-COMMON	BLACK	2
	OUTPUT	WHITE	3
	*DIGITAL OUTPUT	GREEN	4
4-20mA	+POWER SUPPLY	RED	1
	OUTPUT	BLACK	2
	N/C	N/C	3
	N/C	N/C	4

0-5VDC OUTPUT

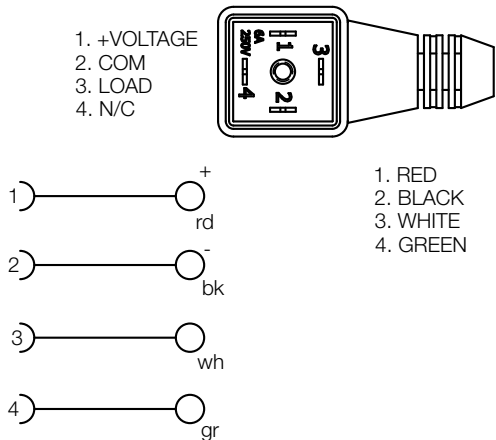


4-20mA OUTPUT



*(OPTIONAL)

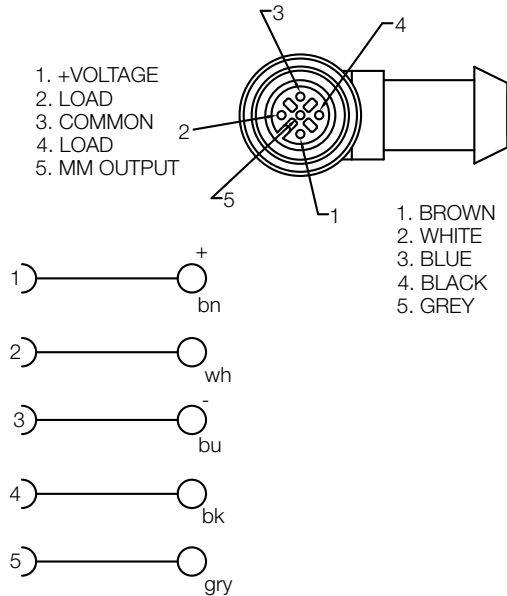
9.4mm DIN Cable Assembly



PART #	* = LENGTH
NTC91	1 METER
NTC93	3 METERS

CABLE: PUR - 4 X 22AWG SHIELDED

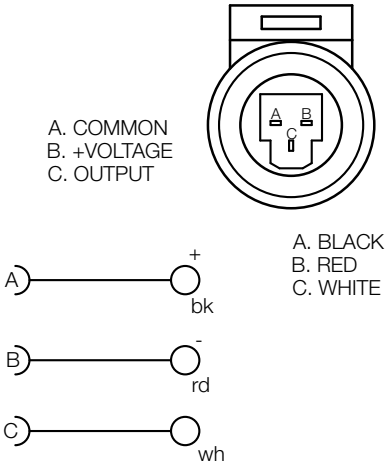
M12, 5 PIN IP67K Cable Assembly



PART #	* = LENGTH
NTCM1251	1 METER
NTCM1253	3 METERS

CABLE: PVC - 5 X 22AWG SHIELDED

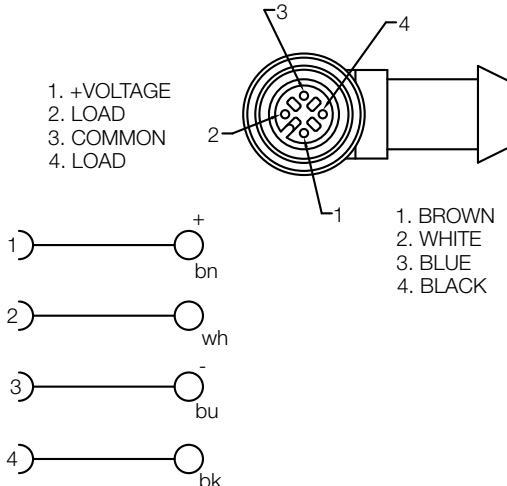
3 PIN Packard Cable Assembly



PART #	* = LENGTH
NTCPAC1	1 METER
NTCPAC3	3 METERS

CABLE: PVC - 4 X 22AWG

M12, 4 PIN IP69K Cable Assembly



PART #	* = LENGTH
NTCM121	1 METER
NTCM123	3 METER

CABLE: PUR - 4 X 22AWG SHIELDED

Diaphragm Compatibility

Media	Buna	EP	Viton
Acetic Acid		•	
Acetone		•	
Acetylene	•		
Air	•		
Alcohols	•		
Alkalies (Weak)	•		
Alkalies (Strong)		•	
Ammonia (Anhydrous)	•		
Ammonia (Hydroxide)		•	
Asphalt			•
Automotive Oils	•		
Beer	•		
Benzene			•
Boric Acid	•		
Brake Fluid		•	
Bunker Oil	•		
Butane	•		
Butyl Cellosolve		•	
Carbon Dioxide	•		
Carbon Monoxide	•		
Cellube		•	
Chlorobenzene			•
Citric Acid	•		
Coke Oven Gas			•
Coolanol	•		
Diesel Fuels	•		
Di-Ester Lube (MIL-L-7808)			•
Dowtherm A&E		•	
Ethanol	•		
Ether		•	
Ethylene	•		
Ethylene Glycol	•		
Freon 11, 12, 112, 114	•		
Freon 22		•	
Fyrquel		•	
Fuel Oil	•		
Gasoline	•		
Glycerin	•		
Helium	•		
Hexane	•		

Media	Buna	EP	Viton
Hydraulic Oil (PET Base)	•		
Hydrocarbons	•		
Hydrogen	•		
Hydrogen Sulphide		•	
Isopropanol		•	
JP-3-6	•		
Kerosene	•		
LPG	•		
Lube Oil (PET base)	•		
Methanol	•		
MEK		•	
Mineral Oil	•		
Motor Oils	•		
Naptha		•	
Natural Gas	•		
Nitric Acid		•	
Nitrogen	•		
Oleum Spirits			•
Oxygen	•		
Ozone		•	
Crude Oil	•		
Phosphoric Acid			•
Propane	•		
Propanol	•		
Pydraul		•	
Shell Iris 902	•		
Silicone Greases	•		
Silicone Oils	•		
Skydrol 500 & 7000		•	
Soap Solutions	•		
Steam Below 320°F		•	
Stoddard Solvent	•		
Sulfuric Acid			•
Toluene			•
Transmission Fluid A	•		
Trisodium Phosphate	•		
Turpentine	•	•	
Water to 220°F (104°C)	•		
Water to 302°F (150°C)		•	

Other diaphragm materials are available. Consult factory for stock.

Temperature Conversions - [Formula °C = 5/9 (°F - 32°) °F = (9/5 °C) +32°]

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
40	104.0	62	143.6	84	183.2	106	222.8	128	262.4
41	105.8	63	145.4	85	185.0	107	224.6	129	264.2
42	107.6	64	147.2	86	186.8	108	226.4	130	266.0
43	109.4	65	149.0	87	188.6	109	228.2	131	267.8
44	111.2	66	150.8	88	190.4	110	230.0	132	269.6
45	113.0	67	152.6	89	192.2	111	231.8	133	271.4
46	114.8	68	154.4	90	194.0	112	233.6	134	273.2
47	116.6	69	156.2	91	195.8	113	235.4	135	275.0
48	118.4	70	158.0	92	197.6	114	237.2	136	276.8
49	120.2	71	159.8	93	199.4	115	239.0	137	278.6
50	122.0	72	161.6	94	201.2	116	240.8	138	280.4
51	123.8	73	163.4	95	203.0	117	242.6	139	282.2
52	125.6	74	165.2	96	204.8	118	244.4	140	284.0
53	127.4	75	167.0	97	206.6	119	246.2	141	285.8
54	129.2	76	168.8	98	208.4	120	248.0	142	287.6
55	131.0	77	170.6	99	210.2	121	249.8	143	289.4
56	132.8	78	172.4	100	212.0	122	251.6	144	291.2
57	134.6	79	174.2	101	213.8	123	253.4	145	293.0
58	136.4	80	176.0	102	215.6	124	255.2	146	294.8
59	138.2	81	177.8	103	217.4	125	257.0	147	296.6
60	140.0	82	179.6	104	219.2	126	258.8	148	298.4
61	141.8	83	181.4	105	221.0	127	260.6	149	300.2

Pressure Conversion Formulas

Into > Multiply by To Convert	PSI	H2O (15°C)	mmHg (0°C)	"Hg (0°C)	Millibar	Bar	Kg/Cm2	kPa
PSI	•	27.70	51.71	2.036	68.95	0.06895	0.07031	6.895
"H2O (15°C)	0.03609	•	1.867	0.07349	2.489	0.002489	0.002538	0.249
mmHg (0°C)	0.01934	0.5357	•	0.03937	1.3333	0.0013333	0.0013596	0.113
"Hg (0°C)	0.4912	13.61	25.40	•	33.86	0.03386	0.03453	3.386
Millibar	0.0145	0.4018	0.750062	0.02953	•	0.001	0.0010197	0.09998
Bar	14.50	401.8	750.062	29.53	1000	•	1.0197	99.98
Kg/Cm2	14.22	394.05	735.559	28.96	980.7	0.9807	•	98.05
kPa	0.145	4.016	7.519	0.2953	10.002	0.010	0.0102	•

Glossary of Terms

Snap-Action Switches

Nason uses only the highest quality snap-action electrical switches which insures a positive, instantaneous electrical contact under all operating conditions. Nason electrical switches are UL, CSA, CE, and military listed. Ask about our new environmentally sealed snap-action switch.

Diaphragms

Nason pressure switches incorporate elastomer diaphragms to provide a positive media seal. Nitrile is the material of choice for most applications. Ethylene propylene, fluorocarbon, fluorosilicon, and neoprene are readily available for specific applications.

Differential

A distinct change in pressure (or temperature for temperature switches) is necessary to reset a Nason snap-action switch to its original electrical state. This feature prevents “searching” and maximizes switch and system life. Catalog ranges are typical mid-range and can be varied with special construction.

Electrical Connections

A wide variety of electrical connectors are readily available for most applications. Screw terminals, wire leads, blades, studs, conduit, automotive DIN and military connectors are stock items.

Media Connections

Nason’s offering of media connections is unmatched in the industry. NPT, BSP, SAE, JIS, DIN, MS and many others are readily available.

Electrical Circuits

A unique variety of electrical contact arrangements allows the system designer to achieve complex logic at minimal cost. Contact arrangements up to form ZZ and isolated dual set points are available.

Electrical Rating

Most Nason switches are available in a nominal 5 or 10 AMP rating. Gold plated contacts for low current and 25 AMP ratings are also available.

Life

The operational life of a Nason switch is normally in excess of one million cycles. Operating life depends on many variables, and specific tests should be run if marginal conditions exist.

Application

Nason switches are used successfully in a great variety of pneumatic and hydraulic applications. Military vehicles and equipment, aviation, marine, machine tools, farm and construction equipment, process equipment, medical equipment, and industrial machinery are typical applications.

Customization

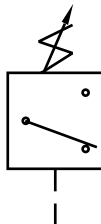
Nason has the experience and willingness to customize any switch to meet specific application requirements. Special media connections, electrical connections, circuitry and construction materials can be designed and produced as needed.

Installation Torques

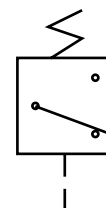
Pressure Switch - 10 ft lbs
 Temperature Switch - 14-15 ft lbs.

Circuitry

Adjustable Pressure Switch
 Component Symbol



Fixed Pressure Switch
 Component Symbol



ELECTRICAL CONNECTION OPTIONS

MORE THAN THE COMPETITION

Nason knows that your designs are used in all types of applications imaginable, so we want to make sure you have a choice of how you configure electrical connections. We offer you a wide and growing selection of connections, and if you want something else, just ask our design engineers for it.



Screw
Terminals
#8 – 32

HF	HH	HR	HP	HM	MP	NP	
DIN43650A 1/2" Conduit <i>(Plug & Receptacle)</i> IP65	DIN43650A <i>(Plug Only)</i>	DIN43650A Strain Relief <i>(Plug & Receptacle)</i> IP67	9.4mm DIN <i>(Plug Only)</i>	9.4mm DIN <i>(Plug & Receptacle)</i> IP65	Metri-Pack Female 280 Series Sealed IP66	Metri-Pack Male 280 Series Sealed IP66	
CP	DP	PP	QC	WL	WP	TP	
Metri-Pack Female 150 Series Sealed IP66	Metri-Pack Male 150 Series Sealed IP66	Boot <i>(Military Connector)</i>	1/4" Male Spade Quick Connect	Wire Leads	Weather Pack <i>(Female)</i> IP66	Weather Pack <i>(Male)</i> IP66	
EL	EF	WD	PD	ES	CL	SL	VL
1/2" NPT Male Conduit	1/2" NPT Female Conduit	Deutsch Receptacle IP67	Deutsch Plug IP67	M12 - 4PIN IP67	Sheathed 18 AWG Primaries	SJO Cable	Convolute Covering

Color Code:
Pin Assignments:
DIN Connector Pin Assignments:
M12 Connector Pin Assignments:

Black – Common	Red – Normally Open	Blue – Normally Closed
A – Normally Open	B – Common	C – Normally Closed
#1 – Common	#2 – Normally Closed	#3 – Normally Open
#1 – Common	#2 – Not Used	#3 – Normally Open
		#4 – Not Used
		#4 – Normally Closed