



Explosion-Proof Transducers (I/P)

NCP3 Series

Part No. [NCP3-20-033X](#)Part No. [NCP3-20-315XANG](#)

The NITRA NCP3 series is a line of explosion-proof I/P (current-to-pressure) transducers that convert a 4–20 mA electrical input signal into a proportional pneumatic output, commonly used, to operate valve actuators in industrial and hazardous environments. The [NCP3-20-315XA](#) and [NCP3-20-315XANG](#) models are configured for a 3–15 psig output range, while the [NCP3-20-033X](#) and [NCP3-20-033XNG](#) models are configured for a wider 0–33 psig output range, giving users flexibility to match the transducer to different actuator pressure requirements. The “NG” designation on the [NCP3-20-033XNG](#) and [NCP3-20-315XANG](#) models indicates natural gas compatibility, meaning these units include a tapped/captured exhaust and a factory-installed sealed conduit fitting so they can safely vent natural gas media rather than standard instrument air.

All four models share a NEMA 4X (IP65) rated housing suitable for both intrinsically safe and explosion-proof installations in Class I/II/III hazardous locations.

Internally, each unit uses adjustable DIP switches to set the operating mode: direct acting, reverse acting, or split range, along with zero and span screws for field calibration.

Accuracy across the line is rated at $\pm 0.10\%$ of span, with low air consumption of 3.0 scfh at mid-range, making these units efficient even in continuous-duty applications. All four models are backed by AutomationDirect’s standard product support and use the same core internal electronics, differing only in output range and natural gas suitability.

Features

- [NCP3-20-315XA](#) / [NCP3-20-315XANG](#) – 3–15 psig pneumatic output range and field-adjustable to 3–27 or 6–30 psig
- [NCP3-20-033X](#) / [NCP3-20-033XNG](#) – wider 0–33 psig pneumatic output range
- [NCP3-20-033XNG](#) / [NCP3-20-315XANG](#) – natural gas rated, with sealed conduit fitting and tapped exhaust
- NEMA 4X (IP65) explosion-proof enclosure, FM/CSA approved for Class I/II/III hazardous locations
- Field-adjustable DIP switches for direct acting, reverse acting, or split range operation
- High accuracy ($\pm 0.10\%$ of span) with low air consumption (3.0 scfh at mid-range)
- Assembled in the USA

Manual



Scan or click the above QR code to be taken to the NCP3 Series Manual



See www.AutomationDirect.com for a wide variety of fitting options

NCP3 Series Explosion-Proof I/P Transducers Selection

Part Number	Input	Output Range		Media	Supply Pressure**		Inlet Port	Outlet Port	Electrical Connection	Weight (lb)	Drawing Link	Price
		psig	bar		psig	bar						
NCP3-20-033X	4–20 mA	0–33	0.0–2.3	Air	45–70	3.1–4.8	1/4in female NPT	1/4in female NPT	1/2in female NPT with terminal	2.34	PDF	\$855.00
NCP3-20-315XA		3–15*	0.21–1.03		100 Max	6.9 Max				2.34	PDF	\$955.00
NCP3-20-033XNG		0–33	0.0–2.3	Natural gas	45–70	3.1–4.8		1/4in and 1/8in female NPT	1/2in male NPT conduit connection with 10ft wire leads	3.14	PDF	\$1,065.00
NCP3-20-315XANG		3–15*	0.21–1.03		100 Max	6.9 Max				3.14	PDF	\$1,095.00

*3–27 psig and 6–30 psig is achieved with field selectable units.

** Note: Supply pressure must be a minimum of 5 psig above maximum output.

See our website www.AutomationDirect.com for complete engineering drawings.



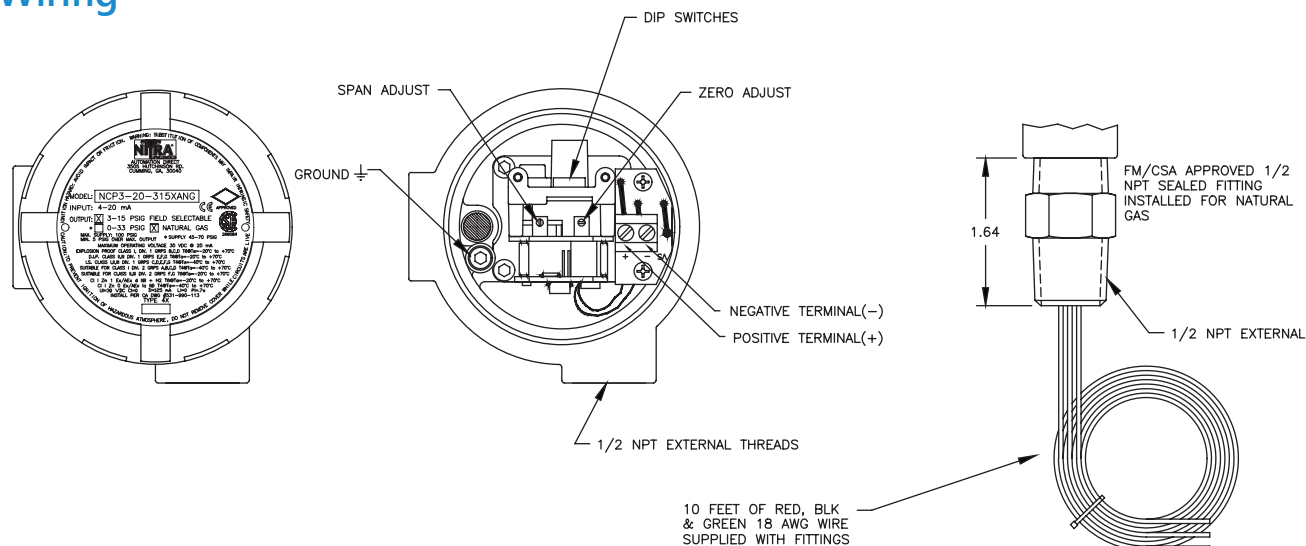
Explosion-Proof Transducers (I/P)

NCP3 Series

NCP3 Series Explosion-Proof I/P Transducers General Specifications

Input Signal	4–20 mA
Air Consumption	3.0 scfh [1.4 NL/min] at mid-range (multiply by 1.29 for natural gas)
Flow Capacity	4.5 scfm [127 NL/min] at 25 psig; 12.0 scfm [340 NL/min] at 100 psig supply (multiply flow value by 1.29 for natural gas)
Accuracy, Hysteresis, Repeatability	±0.10% of span (±0.25% with field-selectable option)
Deadband	0.02% of span
Position Effect	No measurable effect
Vibration Effect	Less than ±1.0% of span (5–15 Hz @ 0.8in constant displacement; 15–500 Hz @ 10g)
Temperature Effect	±0.045%/°F [±0.08%/°C] of span
Reverse Polarity Effect	No damage from reversal of normal supply current (4–20 mA) or from currents up to 60 mA
Operating Temperature	-40 to +158 °F [-40 to +70 °C]
Storage Temperature	-40 to +200 °F [-40 to +93 °C]
Loop Load, I/P Transducer	9.5 VDC @ 20 mA (475 Ω resistance)
Operating Modes	Direct acting, reverse acting, split range (split ranging not possible with field selectable option)
Pneumatic Port Size	1/4in NPT (and 1/8in NPT on natural gas models)
Electrical Port Size	1/2in female NPT (1/2 male NPT for natural gas models)
Media	Clean, dry, oil-free air, filtered to 40 µm (natural gas for NG models)
Mounting	Direct wall, panel (bracket included), or 1.5in / 2in pipe (optional kit NCP3-P)
Housing Material	Chromate-treated aluminum with epoxy paint, NEMA 4X (IP65)
Elastomers	Buna-N
Trim	Stainless steel; brass; zinc-plated steel
Hazardous Location Approval	FM/CSA Explosion-Proof & Intrinsically Safe, Class I/II/III

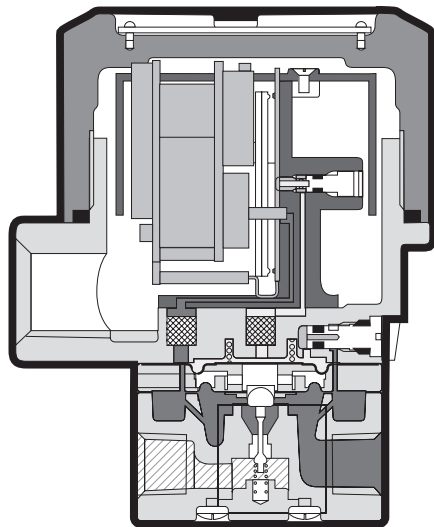
Wiring





Explosion-Proof Transducers (I/P) NCP3 Series

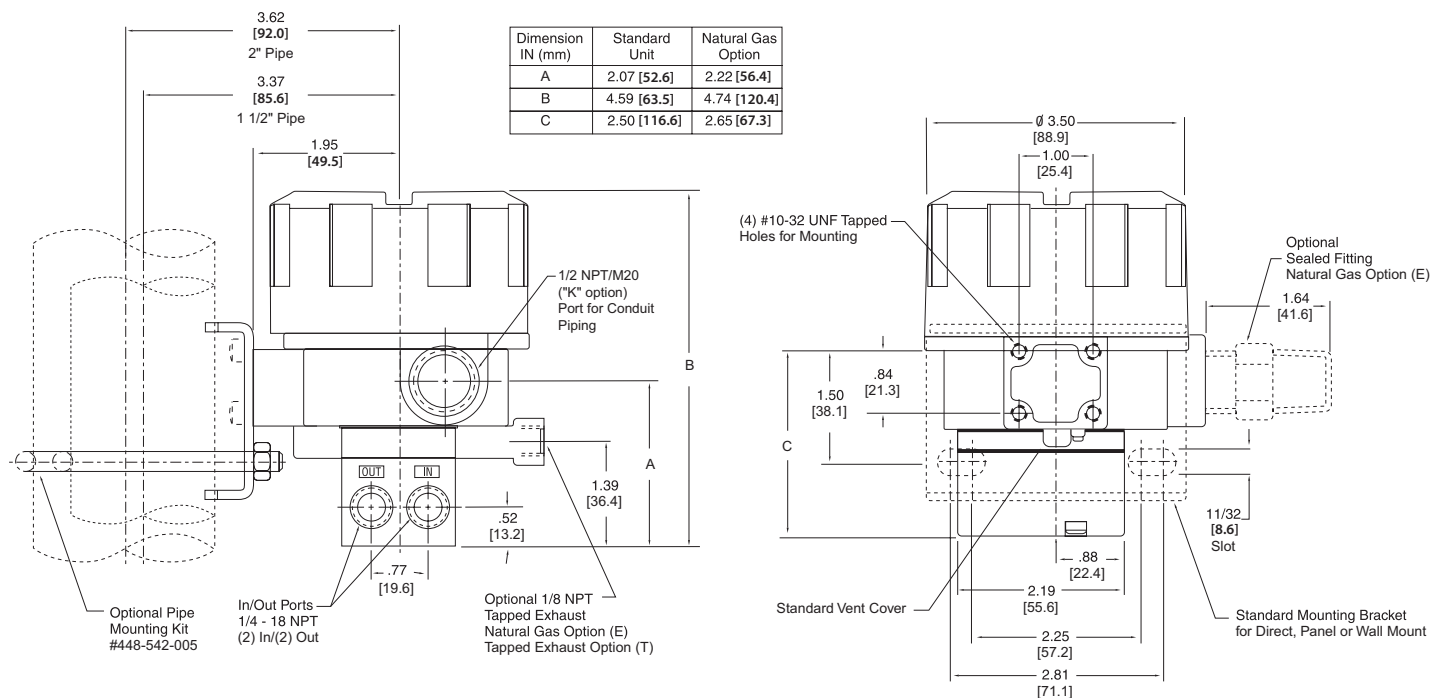
Internal View



- Actuator and Control Electronics
- Pilot Pressure
- ▨ Input Pressure
- Output Pressure

Dimensions

inches [mm]





Explosion-Proof Transducers (I/P)

NCP3 Series

Applications

Control valve actuation — The most common use: converting a 4–20 mA signal from a PLC or DCS into a precise pneumatic signal (3–15 psig, 0–33 psig, etc.) to position a control valve actuator, common in process lines controlling flow, pressure, or temperature.

Natural gas processing and transmission — The NG-rated models ([NCP3-20-033XNG](#) and [NCP3-20-315XANG](#)) are built specifically for this, allowing the transducer to use natural gas or methane itself as the pilot/supply media rather than plant air, useful at gas compressor stations, gathering systems, or metering skids.

Hazardous location installations — Because these units are explosion-proof and intrinsically safe rated (FM/CSA, Class I/II/III), they're well suited for oil and gas facilities, refineries, chemical plants, and other environments where flammable vapors or dust may be present.

Outdoor and remote pipeline stations — With a NEMA 4X (IP65) enclosure and wide operating temperature range (-40 to +158 °F), these hold up well at unmanned or semi-remote outdoor sites like pipeline valve stations or tank farms.

Damper and louver positioning — Beyond valves, these transducers can drive pneumatic actuators on large dampers or louvers in industrial ventilation or combustion air systems, where a stable, vibration-resistant pneumatic signal is needed.

Retrofit or upgrade projects — Since they offer field-selectable output ranges and multiple mounting options (valve yoke, wall, panel, or pipe via the [NCP3-P](#) kit), they're a convenient drop-in replacement when upgrading older or failing I/P transducers without needing to redesign the mounting setup.

Accessory



Part No. [NCP3-P](#)

The [NCP3-P](#) is the optional pipe mounting kit for the NITRA NCP3 series explosion-proof I/P transducers, designed for installations where the unit needs to be mounted to a pipe stand rather than directly to a valve yoke, wall, or panel. It allows the transducer to be securely fastened to either a 1.5in [3.8cm] or 2in [5.1cm] pipe, giving installers more flexibility in positioning the unit near the actuator or control point it's serving. Since the NCP3 transducer is position-insensitive, the NCP3-P kit allows mounting in whatever orientation is most convenient for the application without affecting performance or accuracy.

Features

- NCP3-P – optional mounting kit for pipe-stand installation
- Compatible with 1.5in [3.8cm] or 2in [5.1cm] pipe diameters
- Works with all NCP3 series models regardless of output range or natural gas rating
- Supports flexible mounting since the transducer is position-insensitive
- Simplifies installation in locations without a nearby wall, panel, or valve yoke

NCP3 Series Explosion-Proof I/P Transducers Accessory

Part Number	Description	Weight (lb)	Drawing Link	Price
NCP3-P	NITRA pipe mounting hardware, for use with NCP3 series IP transducers.	0.55	PDF	\$25.00