

Sanitary 3A Pressure Transmitter NEMA 4X with Integral Junction Box Model F-20-3A

Datasheet F-20-3A

Applications

- Food and beverage industry
- Pharmaceutical industry
- Biotechnology industry
- Cosmetic industry

Special Features

- Meets “3A” criteria
- Available with 3/4”, 1.5” and 2.0” Tri-Clamp® process connection
- Stainless steel transmitter housing
- 316LSS electropolished wetted surfaces, Ra<20 μ inch
- FDA approved system fill fluid
- Standard pressure ranges from 15psi up to 1500psi (vacuum and compound ranges available)
- 4-20mA or voltage output signals are available

Description

Compact design

WIKA F-20-3A pressure transmitters are in compliance with “3A” third party criteria for pressure and level measurement in all sanitary applications. The process wetted surfaces of 316L stainless steel are electropolished to reduce cleaning time. This transmitter features 0.25% output linearity (BFSL) over a wide operating temperature range.

The transmitters are available with industry standard 3/4”, 1.5” and 2.0” Tri-Clamp® process connections. Mineral oil (KN92) is the standard system fill fluid behind the process connection diaphragm (glycerine for positive pressure 3/4” Tri-Clamp®) both approved by FDA. The transmitter assembly is designed for “Clean in Place” (CIP) and “Steam in Place” (SIP) maintenance procedures.

The all stainless steel case meets NEMA 4X / IP 67 requirements for wash down and corrosion resistance and ingress protection is available up to IP 68 per IEC 60 529. The smooth exterior surface finish makes it ideal for the sanitary industry to ensure cleanliness. The all-welded design eliminates all threaded connections (excluding transmitter cover) where contaminants may collect.



F-20-3A shown with 3/4” Tri-Clamp® process connection

F-20-3A shown with 1.5” Tri-Clamp® process connection



Easily accessible electrical connection

The sophisticated design of this transmitter provides for fast and easy installation. The junction box cover unscrews for access to the internal spring clip terminal block.

Additional features

Transmitters with the 4-20mA output signal includes an internal test circuit connection that permits the transmitter to be tested without disconnecting the primary 4-20mA circuit. Removal of transmitter cover allows easy access to zero and span adjustment potentiometers. The standard conduit connection is 1/2”npt-female with the option of a NEMA 6P (IP 68) cable gland.

Documentation

Material identification engraved in seal body. Material conformance documents and Calibration Conformance Report supplied with each assembly (not a direct substitute for 3.1b material traceability certificate or NIST calibration certificate).

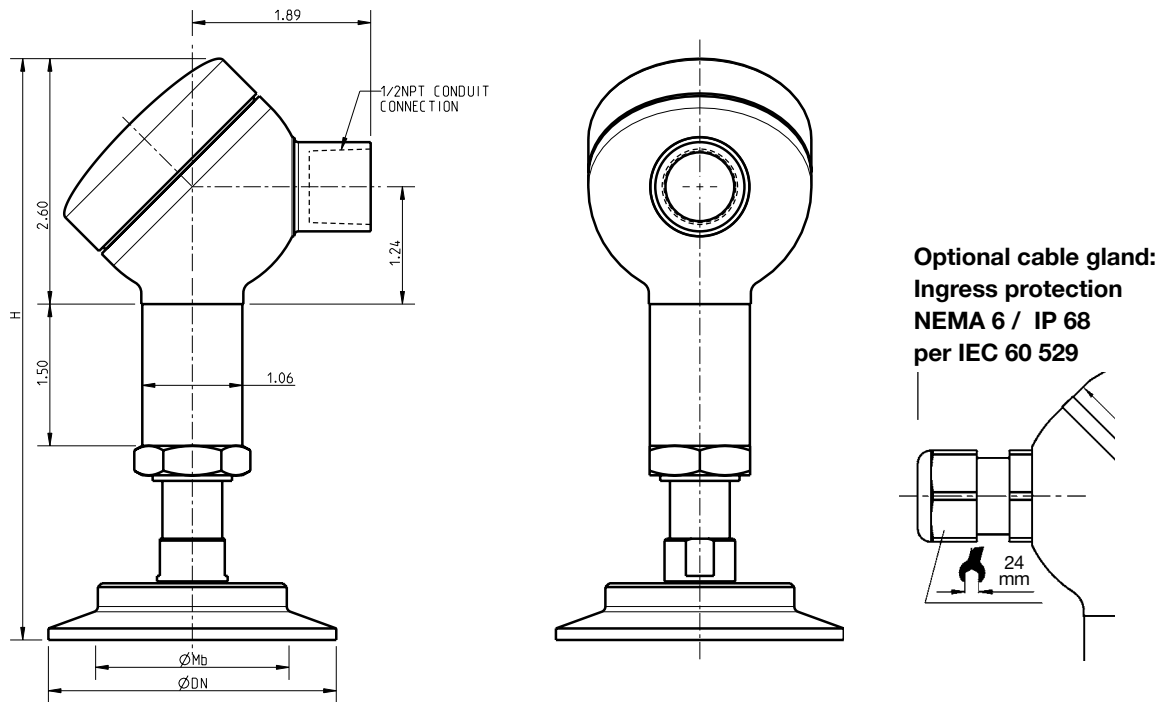
Optional features

Process connections of 2.5”, 3.0” and 4.0” Tri-Clamp® along with other industry specific types and sizes. Pressure ranges below 15 psi are available with the larger process connection sizes. For highly corrosive applications, process wetted materials other than 316L stainless steel are available. Additional FDA approved system fill fluids are available; NEOBEE®-M20 (KN59), glycerine (KN7) and food grade silicone (KN34). Optional certifications are available; NIST calibration, 3.1b material traceability to EN 10 204 and electropolish with nominal surface finish.

Specifications

Materials <ul style="list-style-type: none"> ■ Wetted parts ■ Case Internal transmission fluid		316L stainless steel, electropolished Stainless steel Mineral Oil, KN92 (Glycerine for 3/4" Tri-Clamp® and positive pressure) {Listed by FDA for food applications}				
Process Connection Size & Suitable Pressure Span		3/4" Tri-Clamp® - 60psi minimum 1.5" & 2.0" Tri-Clamp® - 15 psi 2.5" and larger Tri-Clamp® - Consult factory				
Power supply U_B Signal output and maximum load R_A Test circuit signal / max. load R_A Adjustability zero/span Response time (10 ... 90 %) Isolation voltage	VDC % of span ms VDC	10 U _B 30 (11 ... 30 with signal output 4 ... 20 mA, 14 ... 30 with signal output 0 ... 10 V) 4 ... 20 mA, 2-wire R _A (U _B - 11 V) / 0,02 A with R _A in Ohm and UB in Volt 0 ... 20 mA, 3-wire R _A (U _B - 3 V) / 0,02 A with R _A in Ohm and UB in Volt {0 ... 5 V, 3-wire} R _A > 5 kOhm, {0 ... 10 V, 3-wire} R _A > 10 kOhm Only for instruments with 4 ... 20 mA signal output. R _A < 15 Ohm ± 10 using potentiometers inside the instrument < 1 (base transmitter) 500				
Accuracy ¹⁾	% of span % of span	≤0.25 (BFSL) ≤0.5 (limit point calibration) ¹⁾ Including linearity, hysteresis and repeatability. Limit point calibration performed in vertical mounting position with pressure connection facing down.				
Repeatability 1-year stability Permissible Temperatures <ul style="list-style-type: none"> ■ Medium ■ Ambient ■ Storage 	% of span % of span	0.05 0.2 (at reference conditions) 3/4" Tri-Clamp® ≥ +32°F (0°C) to +250°F (+121°C) +32°F (0°C) to +140°F (+60°C) -40°F (-40°C) to +212°F (100°C) <table style="display: inline-table; vertical-align: middle; margin-left: 20px;"> <tr> <td>≥ 1.5" Tri-Clamp®</td> </tr> <tr> <td>-4°F (-20°C) to +300°F (+149°C)</td> </tr> <tr> <td>-4°F (-20°C) to +140°F (+60°C)</td> </tr> <tr> <td>-40°F (-40°C) to +212°F (100°C)</td> </tr> </table>	≥ 1.5" Tri-Clamp®	-4°F (-20°C) to +300°F (+149°C)	-4°F (-20°C) to +140°F (+60°C)	-40°F (-40°C) to +212°F (100°C)
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-40°F (-40°C) to +212°F (100°C)						
Temperature Coefficients (accumulative values, reference temperature +70°F)						
Transmitter Output <ul style="list-style-type: none"> ■ Stability, 1 Year ■ Ambient Effects ■ Medium Effects 	% of span ≤ psi / 10°C psi / 10°C	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> 3/4" Tri-Clamp® 0.2 / 10°C 0.6 0.3 </td> <td style="width: 50%; vertical-align: top;"> ≥ 1.5" Tri-Clamp® ≤0.2 / 10°C 0.03 0.02 </td> </tr> </table>	3/4" Tri-Clamp® 0.2 / 10°C 0.6 0.3	≥ 1.5" Tri-Clamp® ≤0.2 / 10°C 0.03 0.02		
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CE- conformity		89/336/EWG interference emission and immunity see EN 61 326 interference emission limit class A and B 97/23/EG Pressure equipment directive (Module H)				
Shock resistance Vibration resistance	g g	600 according to IEC 60068-2-27 (mechanical shock) 10 according to IEC 60068-2-6 (vibration under resonance)				
Wiring protection		Protected against reverse polarity, overvoltage and short circuiting				
Electrical connection		Internal spring clip terminals; wire cross section 2.5 mm ² max, internal ground Terminal for brass nickel-plated or {stainless steel} threaded connection {additional external ground terminal for stainless steel threaded conduit connection}				
Weight	lb.	Approx. 1.3				

{ } Items in curved brackets are optional extras at additional cost.



PROCESS CONNECTION	DN	Mb	H
3/4" Tri-Clamp®	0.98"	0.6"	6.3"
1.5" Tri-Clamp®	1.97"	1.0"	6.2"
2.0" Tri-Clamp®	2.52"	1.6"	6.2"

Output Signal: 4 to 20mA, 2-wire

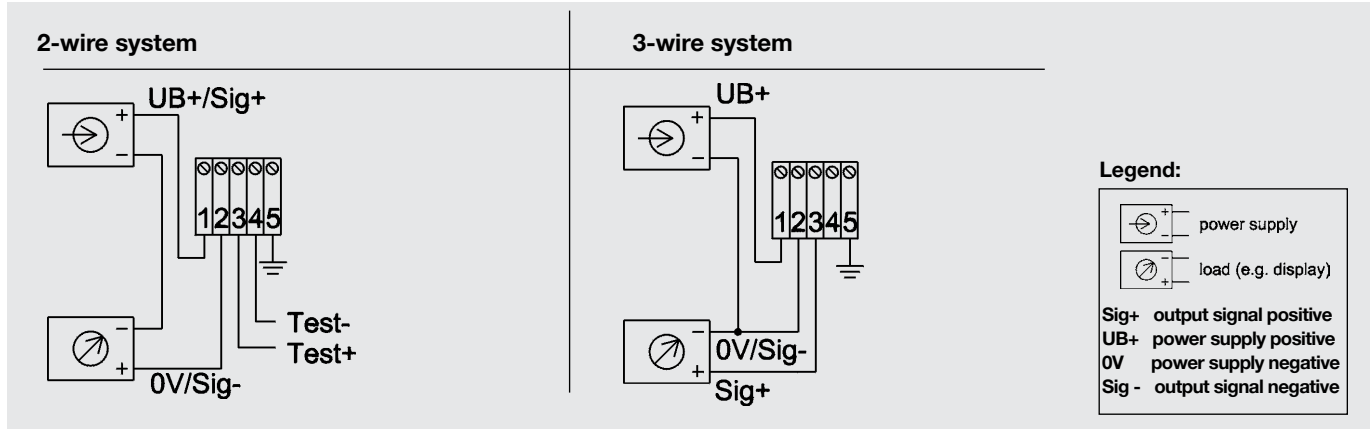
Conduit Connection: 1/2" npt-female

Process Wetted Materials: 316L stainless steel, electropolished

System Fill Fluid: Mineral oil, KN92 (Glycerine for 3/4" Tri-Clamp with positive pressure)

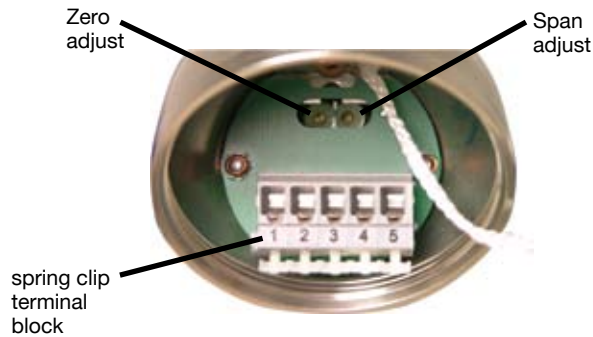
Range	Process Connection		
	3/4" Tri-Clamp®	1.5" Tri-Clamp®	2.0" Tri-Clamp®
0 to 15psi	n/a	50236407	50236512
0 to 25psi	n/a	50236415	50236521
0 to 30psi	n/a	50236423	50236539
0 to 50psi	n/a	50236431	50236547
0 to 60psi	50236334	50236440	50236555
0 to 100psi	50236351	50236458	50236563
0 to 160psi	50236369	50236466	50236571
0 to 200psi	50236377	50236474	50236580
0 to 300psi	---	---	---
0 to 500psi	---	---	---
0 to 1000psi	---	---	---
-30" Hg Vac	n/a	50236482	50236598
-30" Hg to 30psi	n/a	50236491	50236601
-30" Hg to 60psi	50236393	50236504	50236610
-30" Hg to 100psi	---	---	---
-30" Hg to 200psi	---	---	---

Wiring



Calibration

Remove the junction box cover. Attach a meter and power supply to the electrical connector. For gauge ranges the zero potentiometer can be adjusted to produce a null output when no pressure is applied. Span adjustment requires the use of a reference pressure source. Compound and absolute ranges require a vacuum and pressure source. When calibration is complete, reinstall the junction box cover hand tight.



Specifications and dimensions provided in this data sheet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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