

# Type F-20-3A Sanitary Pressure Transmitter

## NEMA 4X with Integral Junction Box

### 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 1,500psi (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 SS 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 SS 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.

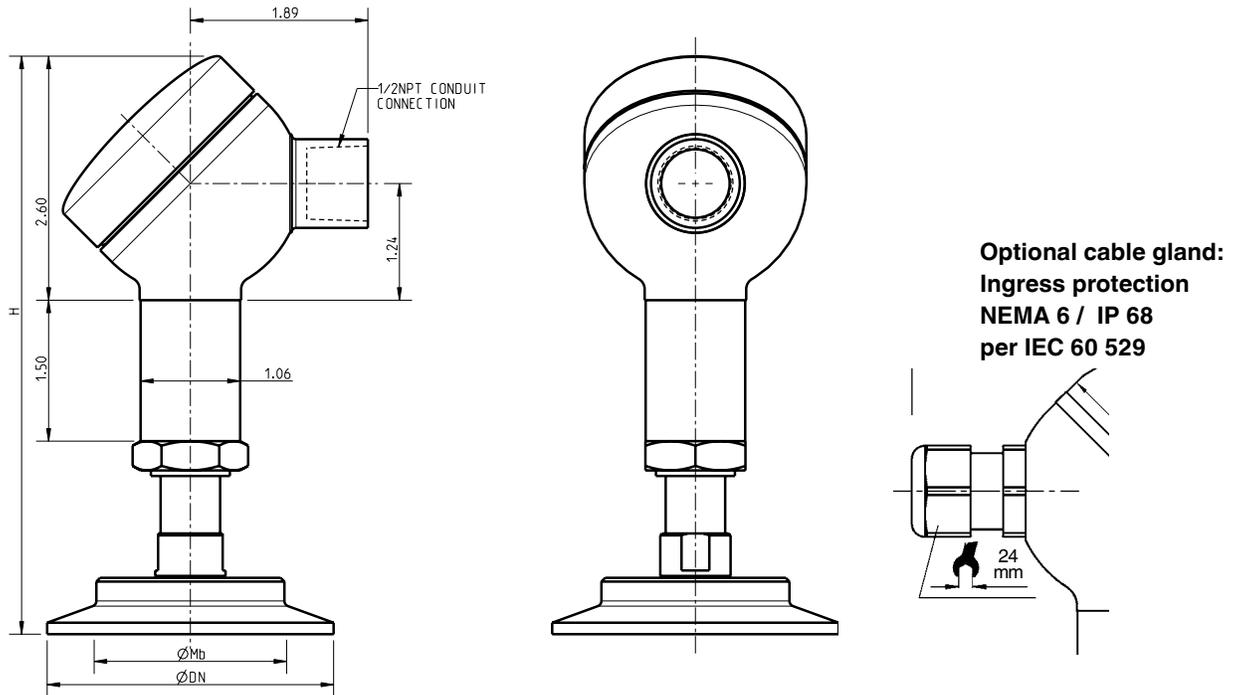
## Specifications

<b>Materials</b> <ul style="list-style-type: none"> <li>■ Wetted parts</li> <li>■ Case</li> </ul> <b>Internal transmission fluid</b> <b>Process connection size &amp; suitable pressure span</b>		316L SS, electropolished Stainless steel Mineral Oil, KN92 (Glycerine for 3/4" Tri-Clamp® and positive pressure) {Listed by FDA for food applications} 3/4" Tri-Clamp® - 60 psi minimum 1.5" & 2.0" Tri-Clamp® - 15 psi 2.5" and larger Tri-Clamp® - Consult factory			
<b>Power supply U<sub>B</sub> +</b> <b>Signal output and maximum load R<sub>A</sub></b> <b>Test circuit signal / max. load R<sub>A</sub></b> <b>Adjustability zero/span</b> <b>Response time (10 ... 90 %)</b> <b>Isolation voltage</b>	VDC    % of span ms VDC	10 < 40+≤ 30 (11 ... 30 with signal output 4 ... 20 mA, 14 ... 30 with signal output 0 ... 10 V) 4 ... 20 mA, 2-wire 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 0 ... 20 mA, 3-wire R <sub>A</sub> (U <sub>B</sub> - 3 V) / 0,02 A with R <sub>A</sub> in Ohm and U <sub>B</sub> in Volt {0 ... 5 V, 3-wire} R <sub>A</sub> > 5 kOhm, {0 ... 10 V, 3-wire} R <sub>A</sub> > 10 kOhm Only for instruments with 4 ... 20 mA signal output. R <sub>A</sub> < 15 Ohm ± 5 using potentiometers inside the instrument < 1 (base transmitter)			
<b>Accuracy <sup>1)</sup></b>	% of span % of span	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;">                 1.5" Tri-Clamp®                  ≤0.25 (BFSL)                  ≤0.5 (limit point calibration)             </td> <td style="width: 5%; border-left: 1px solid black; border-right: 1px solid black;"></td> <td style="width: 45%; vertical-align: top;">                 3/4" Tri-Clamp®                  ≤0.5 (BFSL)                  ≤1.0 (limit point calibration)             </td> </tr> </table> <sup>1)</sup> Including linearity, hysteresis and repeatability. Limit point calibration performed in vertical mounting position with pressure connection facing down.	1.5" Tri-Clamp® ≤0.25 (BFSL) ≤0.5 (limit point calibration)		3/4" Tri-Clamp® ≤0.5 (BFSL) ≤1.0 (limit point calibration)
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<b>Non-repeatability</b> <b>1-year stability</b> <b>Permissible temperatures</b> <ul style="list-style-type: none"> <li>■ Medium</li> <li>■ Ambient</li> <li>■ Storage</li> </ul>	% of span % of span	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;">                 0.1%                  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)             </td> <td style="width: 5%; border-left: 1px solid black; border-right: 1px solid black;"></td> <td style="width: 45%; vertical-align: top;">                 ≥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)             </td> </tr> </table>	0.1% 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)		≥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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<b>Temperature coefficients</b> (cumulative values, reference temperature +70°F) <b>Transmitter output</b> <ul style="list-style-type: none"> <li>■ Stability, 1 Year</li> <li>■ Ambient effects</li> <li>■ Medium effects</li> </ul> <b>CE- conformity</b>	% of span  psi / 10° C psi / 10° C	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;">                 3/4" Tri-Clamp®                  ≤ 0.2 / 10°C                   0.6                  0.3             </td> <td style="width: 5%; border-left: 1px solid black; border-right: 1px solid black;"></td> <td style="width: 45%; vertical-align: top;">                 ≥1.5" Tri-Clamp®                  ≤0.2 / 10°C                   0.03                  0.02             </td> </tr> </table> 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)	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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<b>Shock resistance</b> <b>Vibration resistance</b>	g g	600 according to IEC 60068-2-27 (mechanical shock) 10 according to IEC 60068-2-6 (vibration under resonance)			
<b>Wiring protection</b>		Protected against reverse polarity, overvoltage and short circuiting			
<b>Electrical connection</b>		Internal spring clip terminals; wire cross section 2.5 mm <sup>2</sup> max, internal ground Terminal for brass nickel-plated or {stainless steel} threaded connection {additional external ground terminal for stainless steel threaded conduit connection}			
<b>Weight</b>	lb.	Approx. 1.3			

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

# 3A SANITARY

Electronic Pressure Catalog > 3A Sanitary > F-20-3A



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

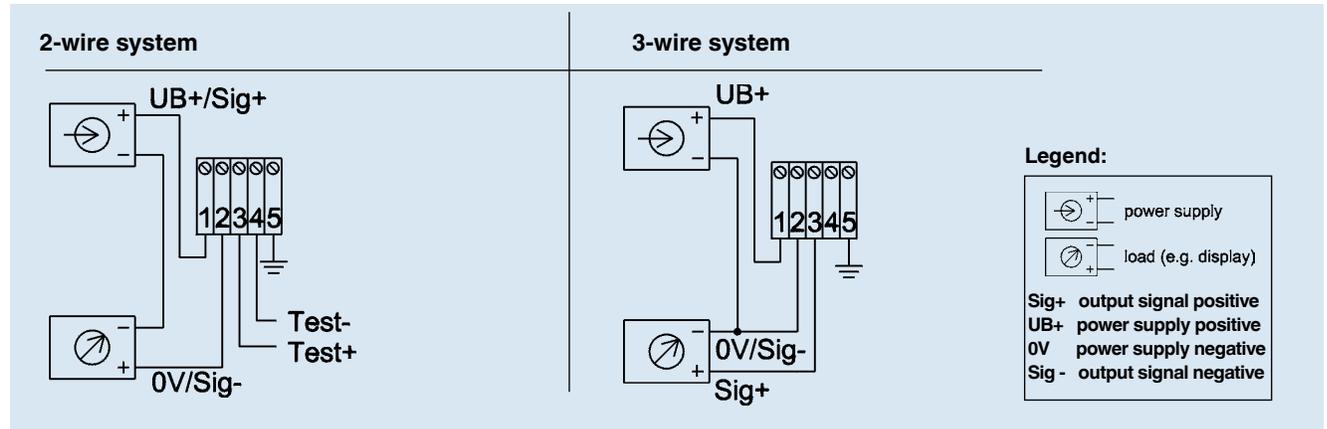
Conduit connection: 1/2" npt-female

Process wetted materials: 316L SS, 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 15 psi	n/a	50236407	50236512
0 to 25 psi	n/a	50236415	50236521
0 to 30 psi	n/a	50236423	50236539
0 to 50 psi	n/a	50236431	50236547
0 to 60 psi	50236334	50236440	50236555
0 to 100 psi	50236351	50236458	50236563
0 to 160 psi	50236369	50236466	50236571
0 to 200 psi	50236377	50236474	50236580
0 to 300 psi	---	---	---
0 to 500 psi	---	---	---
0 to 1,000 psi	---	---	---
-30"Hg Vac	n/a	50236482	50236598
-30"Hg to 30 psi	n/a	50236491	50236601
-30"Hg to 60 psi	50236393	50236504	50236610
-30"Hg to 100 psi	---	---	---
-30"Hg to 200 psi	---	---	---

## Wiring



## F-20-3A Smart Codes for Custom Order Configurations

Field no.	Code	Feature
1	<b>Signal output</b>	
		4 ... 20 mA, 2-wire
		0 ... 10 V, 3-wire (Supply 14-30 V)
		0 ... 5 V, 3-wire
		Other - please specify
2	<b>Units</b>	
		psi
		InWC
	Other - please specify	
3	<b>Pressure range</b>	
		-30 inHg ... 0 <sup>1</sup>
		-30 inHg ... 30 psi <sup>1</sup>
		-30 inHg ... 60 psi
		-30 inHg ... 100 psi
		-30 inHg ... 160 psi
		-30 inHg ... 200 psi
		0 InWC ... 50 InWC <sup>1,2</sup>
		0 InWC ... 100 InWC <sup>1,2</sup>
		0 psi ... 5 psi <sup>1,2</sup>
		0 psi ... 10 psi <sup>1,2</sup>
		0 psi ... 15 psi <sup>1</sup>
		0 psi ... 30 psi <sup>1</sup>
		0 psi ... 60 psi
		0 psi ... 100 psi
		0 psi ... 160 psi
		0 psi ... 200 psi
		0 psi ... 300 psi
		0 psi ... 400 psi
		0 psi ... 500 psi
		0 psi ... 600 psi
		0 psi ... 750 psi
		0 psi ... 1,000 psi
		0 psi ... 1,500 psi
		<b>Process connection</b>
	¾" Tri-Clamp®	
	1½" Tri-Clamp®	
	2.0" Tri-Clamp®	
	2½" Tri-Clamp®	
	3.0" Tri-Clamp®	
	4.0" Tri-Clamp®	
	Other - please specify	

### F-20-3A Smart Codes for Custom Order Configurations (cont'd)

Field no.	Code	Feature
		<b>Material of wetted parts</b>
		316L SS (1.4435) electropolished
		Hastelloy® C276 (2.4819)
		PFA coated 316L SS (FDA approved)
4		Other - please specify
		<b>Fill fluid</b>
		KN 7 - Glycerine (note 3 & 4)
		KN 93 - Food grade silicone oil (note 3)
		KN 59 - NEOBEE® M20
		KN 92 - Mineral oil (liquid paraffin)
5		Other - please specify
		<b>Electrical connection</b>
		½" NPT female conduit (IP 67)
		Stainless steel cable gland (IP 68)
6		Other - please specify
		<b>Quality certificates</b>
		Without
		Certificate - electropolish w/ nominal surface finish
		Certificate - EN 10 204 3.1B (material traceable)
		Certiifcate of Compliance (C of C)
		Certificate - NIST calibration
7		Other - please specify
		<b>Additional order details</b>
		Without
		Additional text

Notes:

- (1) Not available with ¾" Tri-Clamp® process connection
- (2) Consult WIKA for suitable process connection size
- (3) Not recommended for vacuum or compound pressure ranges
- (4) Standard offering for ¾" Tri-Clamp® with positive pressure ranges