Ultra High Purity Transducer, Ex n
Models WUC-10, WUC-15 and WUC-16

Applications

- Semiconductor, Flat Panel Display and Photovoltaic Industry
- Specialty and bulk gas distribution systems (Gas Sticks, Gas Panels, VMBs)

Special Features

- Compact design
- ATEX Zone 2 approval
- Ingress protection NEMA 4 (IP 67) with side access zero point adjustment
- Excellent EMC stability
- Active temperature compensation

Fig. left Transducer WUC-10, Single End
Fig. right Transducer WUC-15, Flow Through
Fig. right Transducer WUC-16, Modular Surface Mount

Description

Compact
The ultra compact design of the WUC-1X meets the smallest product footprint requirements. The space saving design easily replaces competitive transducers, making it the perfect fit for new equipment and retrofit projects.

Our flow through (WUC-15) and surface mount (WUC-16) series transducers are specifically designed and manufactured to sustain torsion applied stresses often incurred during installation. The special design of our thin film sensor eliminates the risk of sensor signal error due to influenced loads at the pressure connection or welded joints.

Versatile
The highest materials of construction ensure that every WUC-1X series transducer is well suited for use in corrosive or non-corrosive medias. Additionally, because every WUC-1X series transducer comes standard with NEMA4 and ATEX certifications, it can be confidently installed in indoor or outdoor systems as well as in non-flammable or potentially flammable areas.

The sealed side access zero point adjustment prevents entry of moisture when used outdoors.

The transducer's non-incendive (ATEX) approvals for potentially flammable environments provide essential safeguards for life and product safety. Carrying a T6 temperature class designator, WUC-1X series transducers easily meet the measurement requirements for low, spontaneous ignition temperature medias such as phosphine (PH3) and silane (SiH4).

Reliable
Active temperature compensation reduces the transducers impact to changing temperatures and provides for safer operations in purge-vent cycling of high Joule-Thomson effect gases.

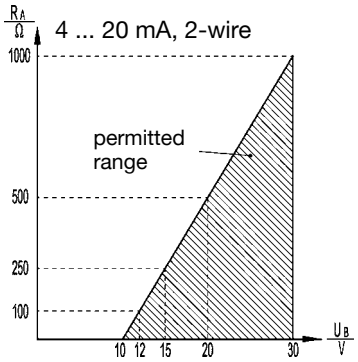
The hermetically sealed design of the transducer's zero point potentiometer protects against unintentional change as well as prevents entry of moisture when used outdoors. The transducers thin film sensors are made of 2.4711/ UNSR 30003 to ensure high corrosion resistance and excellent hysteresis characteristics. The remaining wetted components are made from 316L VIM/VAR stainless steel. Prior to final assembly, all wetted parts are electropolished and cleaned using the latest techniques and industry standards. Individual testing of each transducer guarantees compliance with the requirements for leak integrity, overpressure stability, accuracy, and particles levels according to the applicable and relevant SEMI standards.

Specifications — Models WUC-10, WUC-15 and WUC-16

		WUC-10 / WUC-15												
		WUC-16												
Pressure ranges	psi	14.5	25	60	100	160	250	350	500	1000	1500	2000	3000	5000
	bar	1	1.7	4	7	11	17	25	36	70	100	145	225	360
Over pressure safety [1]	psi	120	120	120	210	320	500	750	1100	2100	3000	4200	6600	10500
Burst pressure [1]	psi	1800	1800	1800	2200	2600	4800	6200	5800	8000	10500	10500	10500	12000
	Other pressure ranges and pressure units (e.g. MPa, kg/cm²) on request													
	[1] 1 psi = 0.069 bar													
Measuring principle		Metal thin film sensor												
Materials														
■ Wetted parts														
» Pressure Connection		316L VIM/VAR												
» Pressure sensor		2.4711 / UNSR 30003												
■ Case		304 SS												
Particle test		≤ 0.1 µm Particle 0.1 ptc / ft³ according to Semi E49.8												
Inboard helium leak test		< 1 x 10^{-9} mbar l/sec (atm STD cc/sec) according to Semi F1												
Surface finish		Electropolished, typical Ra ≤ 0.13 µm (RA 5); max. Ra ≤ 0.18 µm (RA 7)												
		according to Semi F19												
Dead volume	cm³	WUC-10 < 1.5, WUC-15 < 1, WUC-16 < 1												
Permissible Medium		Special gas / Vapour / Liquid												
Power supply U+	U+ in VDC	10 ... 30												
		14 ... 30 with output signal 0 ... 5 V / 0 ... 10 V												
Signal output and	RA in Ohm	4 ... 20 mA, 2-wire				RA ≤ (U+ – 10 V) / 0.02 A								
maximum ohmic load RA		0 ... 5 V, 3-wire				RA > 5 k								
		0 ... 10 V, 3-wire				RA > 10 k								
Power Pi	W	1												
Adjustability zero	% of span	-5 up to +3.5 (via potentiometer)						Current output signal						
	% of span	-2 up to +5 (via potentiometer)						Voltage output signal						
Response time (10 ... 90 %)	ms	≤ 300												
Insulation voltage	VDC	500												
Accuracy	% of span	≤ 0.2 (≤ 0.4 with pressure ranges ≤ 2 bar)						RSS (Root Sum Squares)						
		according to Semi # 3440 draft												
	% of span	≤ 0.5 [2] (≤ 1.0 [2] with pressure ranges ≤ 2 bar)						according to IEC 61298-2						
	[2] Including non-linearity, hysteresis, zero point and full scale error according to IEC 61298-2.													
Non-linearity	% of span	≤ 0.1	(≤ 0.15 for pressure ranges ≤ 2 bar)					(BFSL) according to IEC 61298-2						
Hysteresis	% of span	≤ 0.14												
Non-repeatability	% of span	≤ 0.12												
1-year stability	% of span	≤ 0.25 typ.	(at reference conditions)											
Permissible temperature of		non-ATEX or T4				T5				T6				
■ Medium		-20...+85°C	-4...+185°F			-20...+60°C	-4...+140°F			-20...+40°C	-4...+104°F			
■ Ambience		-20...+85°C	-4...+185°F			-20...+60°C	-4...+140°F			-20...+40°C	-4...+104°F			
■ Storage		-40...+100°C	-40...+212°F			-40...+100°C	-40...+212°F			-40...+100°C	-40...+212°F			
Related temperature range		-20 ... +80 °C / -4 ... +176 °F (active compensated)												
Temperature coefficients within														
related temperature range														
(active compensated):														
■ mean TC of zero	% of span	≤ 0.1 / 10 K												
■ mean TC of range	% of span	≤ 0.15 / 10 K												
RoHS-conformity		Yes	(not with bayonet connector)											
CE-conformity														
■ Pressure equipment directive		97/23/EG												
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and												
		Immunity (industrial locations)												
■ Directive ATEX of equipment intended for use in potentially explosive atmospheres		94/9/EC												
Ex-protection	ATEX	Category [3] 3G (for transducer with Ex-marking)												
Ignition protection type		II 3G Ex nA nL IIC T4/T5/T6 X (for transducer with Ex-marking)												
	[3] **Read** the operating conditions and safety-relevant data in the **operating instruction in any case**													

Specifications		Models WUC-10, WUC-15 and WUC-16	
Assembly and packing area		Clean room class 5 according to ISO 14644	
Packaging		Double bagging according to SEMI E49.6	
Shock resistance	g	500 (1.5 ms)	according to IEC 60068-2-27
Vibration resistance		0.35 mm (10 - 58 Hz) / 5 g (58.1 - 2000 Hz)	according to IEC 60068-2-6
Wiring protection			
■ Short-circuit proofness		S+ towards U- (short-time)	
■ Reverse polarity protection		U+ towards U-	
Weight	kg	Approx. 0.1	

Signal output and allowed load

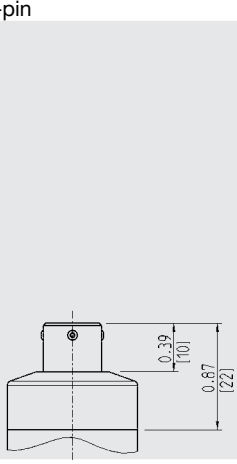
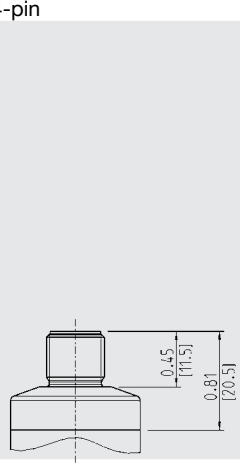
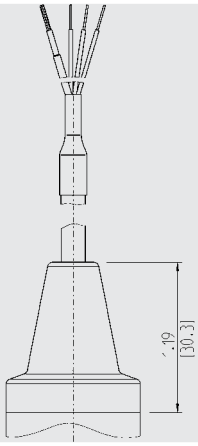
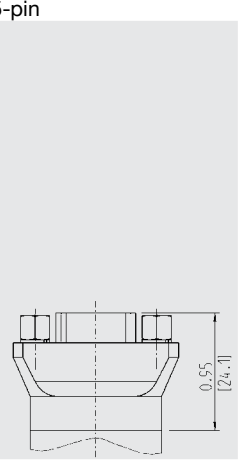


Current output (2-wire)
4 ... 20 mA:
RA ≤ (U+ – 10 V) / 0.02 A

Voltage output (3-wire)
0 ... 5 V: RA > 5 k
0 ... 10 V: RA > 10 k

with RA in Ohm and U+ in Volt

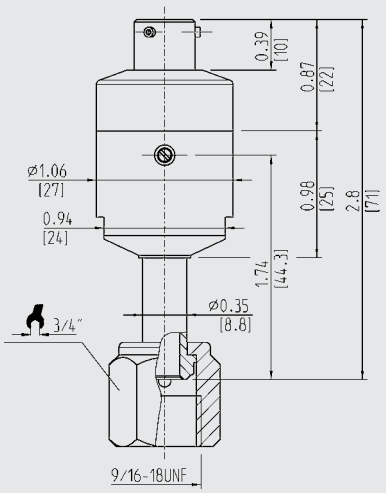
Electrical connections

	Bayonet connector, 4-pin	Circular connector M12x1, 4-pin	Flying leads, 1.5 m	Sub-D HD connector, 15-pin
				
2-wire	U+ = A, U- = D	U+ = 1, U- = 3	U+ = red, U- = black	U+ = 7, U- = 5, U- = 12
3-wire	U+ = A, U- = D, S+ = B	U+ = 1, U- = 3, S+ = 4	U+ = red, U- = black, S+ = brown	U+ = 7, U- = 5, U- = 12, S+ = 2
Wire gauge	-	-	0.22 mm² (AWG 24)	-
Diameter of cable	-	-	4.8 mm	-
Ingress Protection per IEC 60 529	NEMA 4 (IP 67)	NEMA 4 (IP 67)	NEMA 4X (IP 67)	NEMA 3S (IP 54)
	The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.			

Dimensions in inch [mm] WUC-10

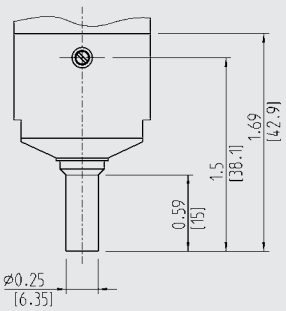
Bayonet connector

1/4“ Swivel Female Face Seal

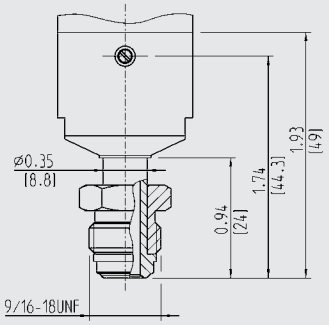


Process connection variants

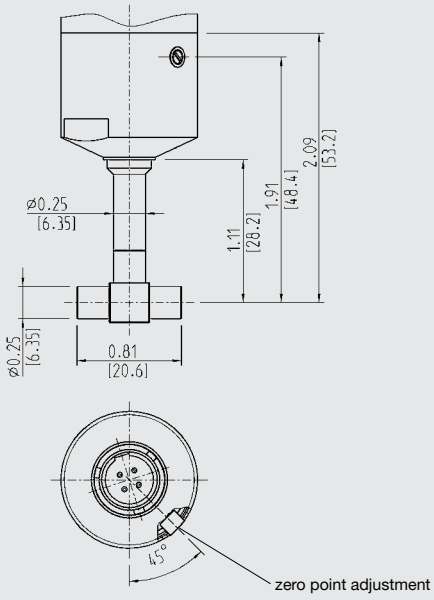
1/4“ Weld Stub



1/4“ Swivel Male Face Seal

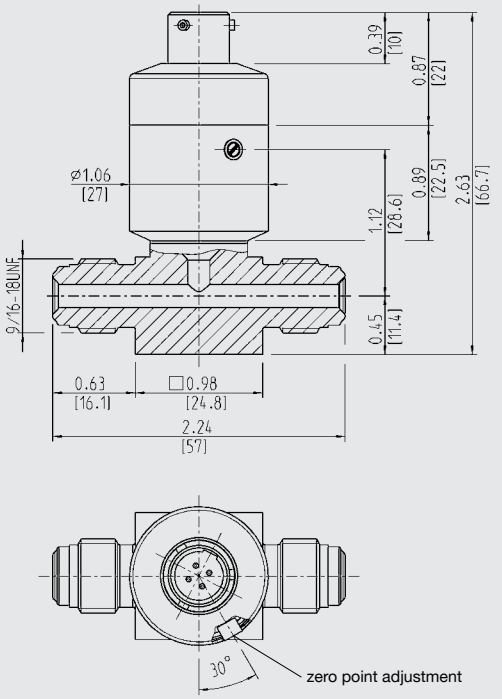


1/4“ T-Connector, Weld Stub



Dimensions in inch [mm] WUC-15

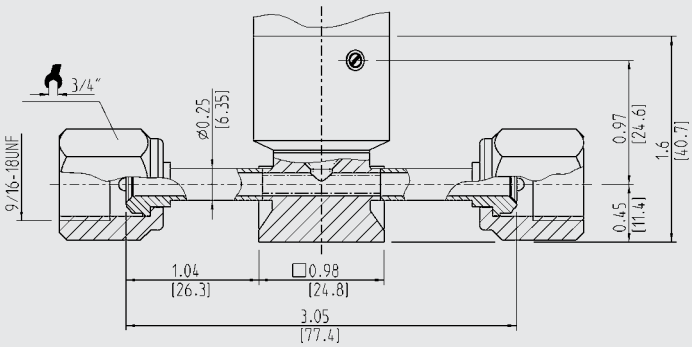
Bayonet connector



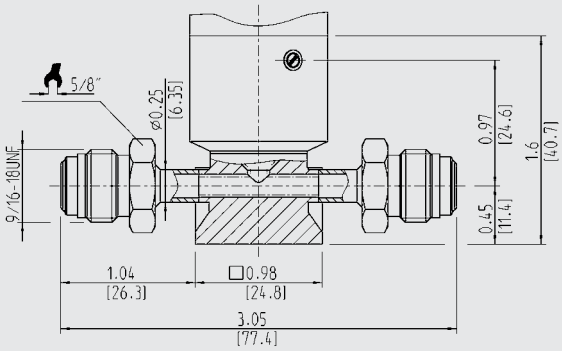
1/4“ Fixed Male Face Seal
1/4“ Fixed Male Face Seal

Process connection variants

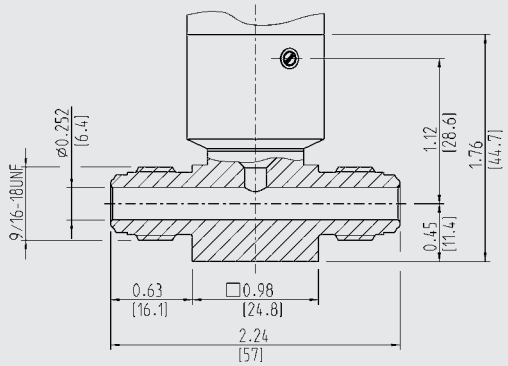
1/4“ Swivel Female Face Seal
1/4“ Swivel Female Face Seal



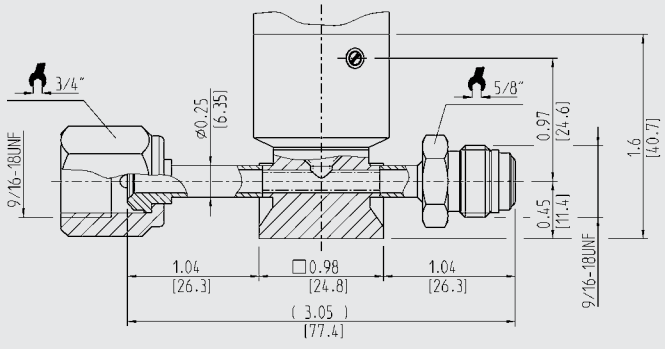
1/4“ Swivel Male Face Seal
1/4“ Swivel Male Face Seal



1/4“ Fixed Male Face Seal High Flow Through
1/4“ Fixed Male Face Seal High Flow Through
only available with pressure ranges up to 25 bar / 300 psi

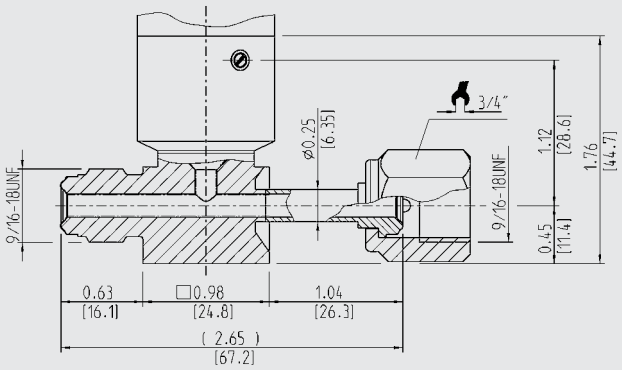


1/4“ Swivel Femal Face Seal
1/4“ Swivel Male Face Seal

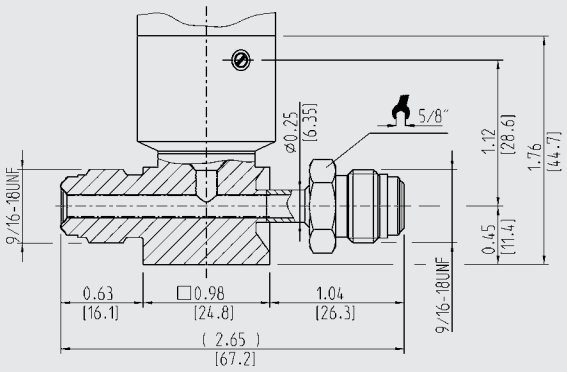


Process connection variants WUC-15

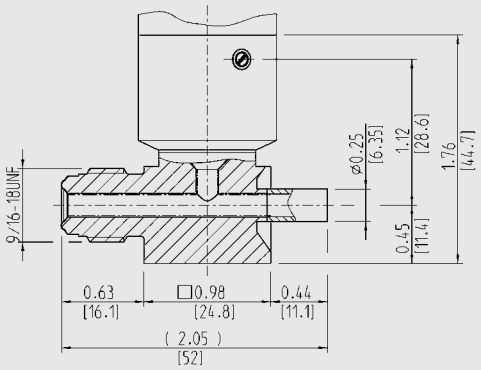
1/4“ Fixed Male Face Seal
1/4“ Swivel Female Face Seal



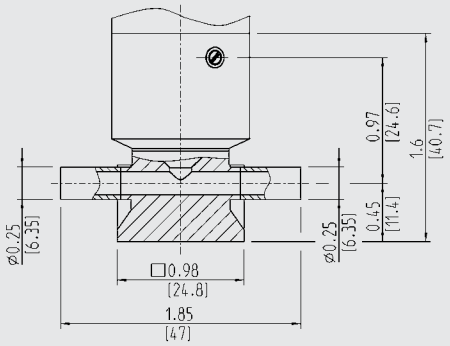
1/4“ Fixed Male Face Seal
1/4“ Swivel Male Face Seal



1/4“ Fixed Male Face Seal
1/4“ Weld Stub



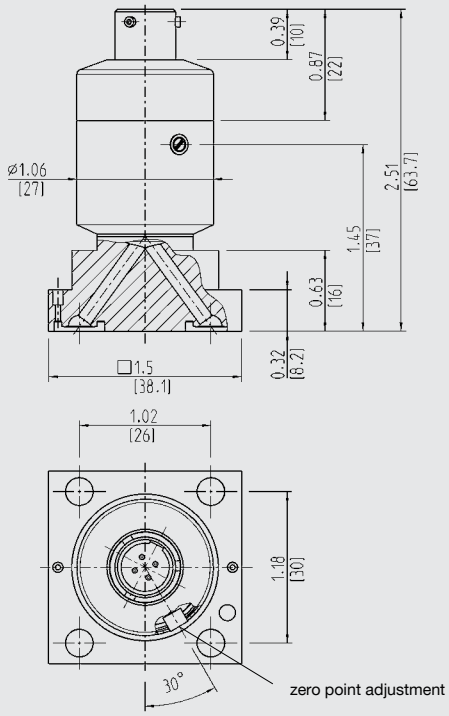
1/4“ Weld Stub
1/4“ Weld Stub



Dimensions in inch [mm] WUC-16

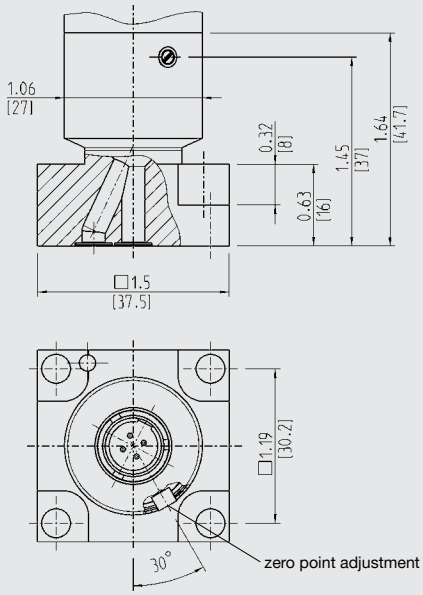
Bayonet connector

MSM W 1 1/2“

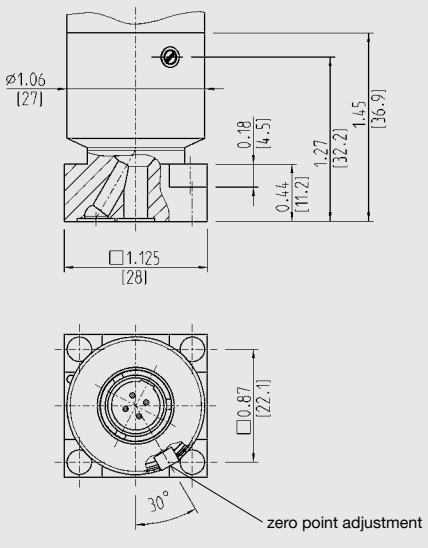


Process connection variants

MSM C 1 1/2“



MSM C 1 1/8“



WUC-1X Smart Codes for Custom Order Configurations

Field No.	Code	Feature		
		Type		
	0	Process connection: single end		
	5	Process connection: flow through		
1	6	Process connection: surface mount		
		Signal Output		
	A	4 ... 20 mA, 2-wire		
	F	0 ... 10 V, 3-wire		
2	G	0... 5 V, 3-wire		
		Damping		
3	Z	Without		
		Unit		
	B	bar		
	p	psi		
	K	kg/cm2		
4	?	Other		
		Absolute or relative pressure		
	G	gauge		
	V	compound		
5	A	absolute		
		Pressure Range		
	320	0...2 bar gauge	-1...+1 bar gauge	
	340	0...4 bar gauge	-1...+3 bar gauge	
	370	0...7 bar gauge	-1...+6 bar gauge	
	410	0...10 bar gauge	-1...+9 bar gauge	
	416	0...16 bar gauge	-1...+15 bar gauge	
	425	0...25 bar gauge		
	440	0...40 bar gauge		
	460	0...60 bar gauge		
	510	0...100 bar gauge	-1...+100 bar gauge	0...1500 psia
	516	0...160 bar gauge	-1...+160 bar gauge	
	525	0...250 bar gauge	-1...+250 bar gauge	
	540	0...400 bar gauge		
	380		-1...+7 bar gauge	
	426		-1...+25 bar gauge	
	441		-1 ...+40 bar gauge	
	461		-1 ...+60 bar gauge	
	471		-1...+70 bar gauge	
	339	0...4 kg/cm2 gauge		
	359	0...6 kg/cm2 gauge		
	398	0...10 kg/cm2 gauge		
	439	0...40 kg/cm2 gauge		
	459	0...60 kg/cm2 gauge		
	498	0...100 kg/cm2 gauge		
	520	0...200 kg/cm2 gauge		

WUC-1X Smart Codes for Custom Order Configurations (continued)

Field No.	Code	Feature		
		Pressure range continued		
	321	0...30 psig		0...30 psis
	335	0...50 psia		
	341	0...60 psig	30 InHg...+45 psi	0...60 psis
	369	0...100 psig		0...00 psia
	411	0...160 psig		0...60 psia
	417	0...250 psig		0...250 psia
	421	0...300 psig		0...300psia
	434	0...500 psig		0...500 psia
	469	0...1000 psig		0...1000 psia
	514	0...2000 psig	-30 InHg...+2000 psi	0...2000 psia
	521	0...3000 psig	-30 InHg...+3000 psi	0...3000 psia
	534	0...5000 psig		0...5000 psia
	331		-30 InHg...+30 psi	
	351		-30 InHg...+60 psi	
	379		-30 InHg...+100 psi	
	412		-30 InHg...+160 psi	
	418		-30 InHg...+250 psi	
	422		-30 InHg...+300 psi	
	436		-30 InHg...+500 psi	
6	470		-30 InHg...+1000 psi	
		Process connection		
	70	Original fixed male nut (9/16-UNF)		
	71	Original swivel male nut SS4-VCR-4		
	72	Original female union nut S-VCR-1		
	VN	1/4” weld stub		
	WK	1/2” swivel male face seal		
	WL	1/2” swivel female face seal		
	WT	1/4” T-Connector (0.87” version)		
	WP	1/2” T-Connector		
	WN	3/8” T-Connector		
	WR	1/4” T-Connector		
	WC	MSM C 1 1/2” SQ		
	WD	MSM W 1 1/2”		
	WE	MSM C 1 1/8” SQ		
7	??	Other		
		Outlet process connection		
	ZZ	Without		
	70	Original fixed male nut (9/16-UNF)		
	71	Original swivel male nut SS4-VCR-4		
	72	Original female union nut S-VCR-1		
	VN	1/4” weld stub		
8	??	Other		

WUC-1X Smart Codes for Custom Order Configurations (continued)

Field No.	Code	Feature
		Electrical connection
	M4	Circular connector M12x1, 4-pin
	DL	Cable w/free ends
	O4	4-Pin bayonet connector
9	TX	15-pin high density Sub-D plug
		Cable length
	Z	Without
	C	1.5 m
	E	3 m
	J	12 m
10	?	Other
		Approvals
	Z	Without
11	E	ATEX Ex. nA nL IIC 3G T4/T5/T6 X

	Additional order info		
	YES	NO	
12	1	Z	quality certificates
13	Z	T	without

Order Code:

	1		2	3		4	5	6		7	8		9	10	11		12	13*
WUC-1	-		-			-				-			-				-	

*Additional order details _____

Specifications and dimensions given in this leaflet 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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