Technical Information
OUA260

Flow assembly used in combination with the sensors OUSAFxx and OUSTF10

For the measurement of UV and NIR absorption, color and turbidity

Application
The low hold-up volume flow assembly OUA260 can be combined with a whole range of various sensors. Depending on the used sensor, it can be applied in the following applications:

- Chromatography control
- Filter monitoring
- Color measurement
- Centrifuge control
- Protein concentration
- Turbidity measurement

Your benefits

- Lowest hold-up volume
- Multiple process connections available such as Tri-Clamp, flanged, welded, etc.
- Wide variety of optical window materials and path lengths
- Various materials available: stainless steel AISI 316 L, titanium, Hastelloy, PEEK, Kynar, etc.
- Ultra-hygienic thanks to electropolished surface R_a=0.4 µm (16 µinch)

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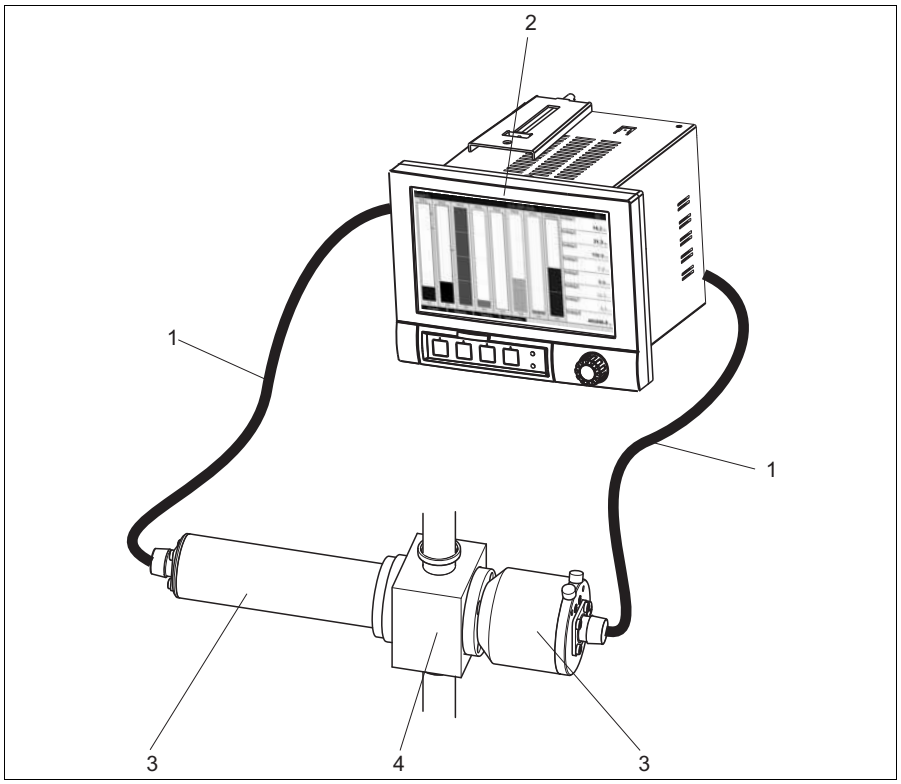
Function and system design

Measuring system

A complete measuring system comprises:
- Transmitter Memograph CVM40
- An optical sensor, e.g. OUSAF44
- Flow assembly, e.g. OUA260
- Cable set, e.g. OUK40



Example of a measuring system

1 Cable set OUK40
2 Transmitter Memograph CVM40
3 OUSAF44 sensor
4 OUA260 flow assembly

Options

Precision optical pathlength adjustment (POPL) for OUA260
This option of the flow assembly allows for precise setting of the distance between the windows. It consists of adjustable window rings and a certified measuring gauge that precisely determines the distance between the windows. This feature provides precise optical pathlengths down to 0.5 mm and results in an increased measuring range, a unique repeatability of measured values, consistent readings between different instruments and fully comparable measuring values to lab results.
The combination of the precision optical pathlength with an Easycal offers the opportunity for a liquid-free, traceable calibration of the whole measuring system and thus eliminates the need for time-consuming calibration with liquid standards.

Air purge option
Air purge ports prevent buildup of condensate on optical windows.

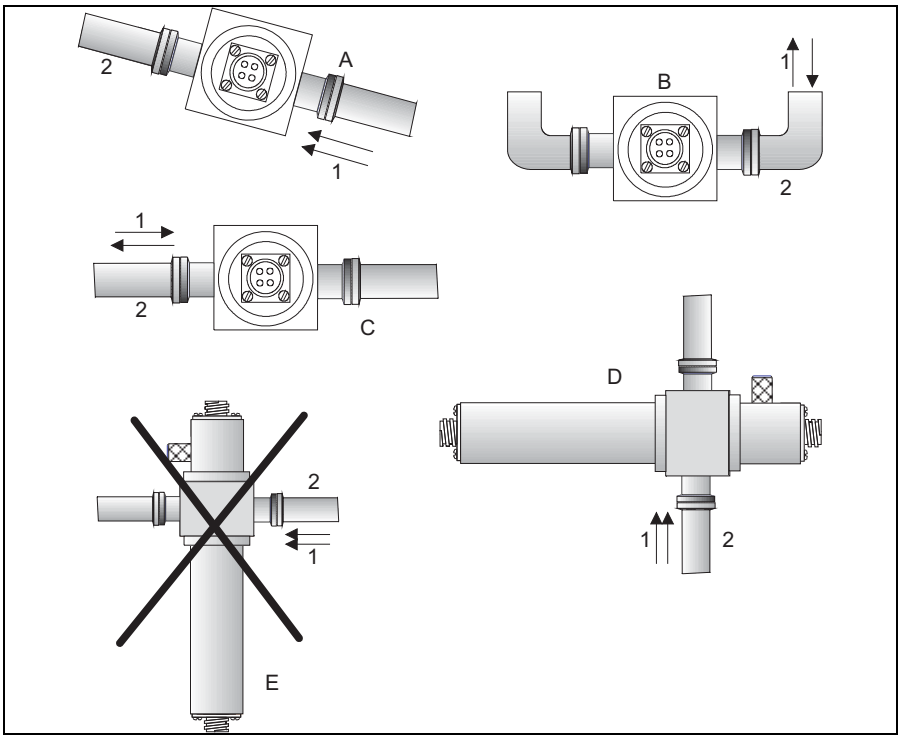
Installation

Installation notes

The OUA260 flow assembly is available with a great variety of process connections. It can be installed either directly in a process line or in a by-pass line.

Make sure that the optical window surfaces of the flow assembly are in a vertical position to prevent buildup on the surfaces. The window surfaces are vertical when the sensor and the detector housing are in a horizontal position.

Install the flow assembly and sensor upstream of pressure regulators.



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Installation positions of the assembly

A	*Preferred*	*E*	*Never*
B	*Acceptable*	*1*	*Process flow*
C	*Avoid*	*2*	*Process piping*
D	*Best*		

Process

Process temperature and pressure range

0 to 130 °C (32 to 266 °F)

Consider the maximum permissible process temperature for the sensor

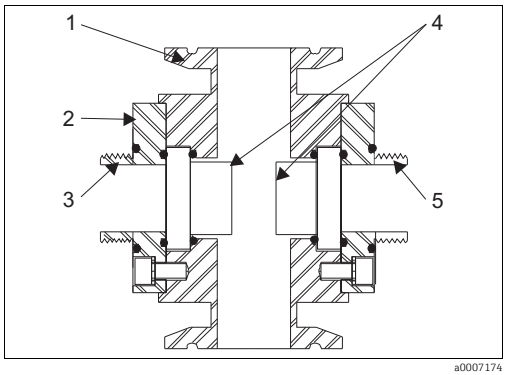
Process temperature and pressure range depend on process connection, material and line size.

Process connection	Line size	Pressure rating		Temperature / °C	Temperature / °Fahrenheit
TC, 316L	0.25-2"	16 bar	230 psi	0-130 °C	32-266 °F
TC, 316L	2.5-4"	10 bar	150 psi	0-130 °C	32-266 °F
TC, Kynar	0.25", 0.5", 0.75"	4 bar	58 psi	0-130 °C	32-266 °F
Flange ASME RF Class 150, 316L	all	10 bar	150 psi	0-130 °C	32-266 °F
Flange 300 RF Class 300, 316L	all	20 bar	300 psi	0-130 °C	32-266 °F
NPT 316L	all	20 bar	300 psi	0-130 °C	32-266 °F
NPT Kynar, plastic fittings	all	4 bar	58 psi	0-130 °C	32-266 °F
NPT Kynar, stainless steel fittings	all	2 bar	29 psi	0-35 °C	32-95 °F

Other options up to 100 bar (1450 psi) and different materials available on request.

Mechanical construction

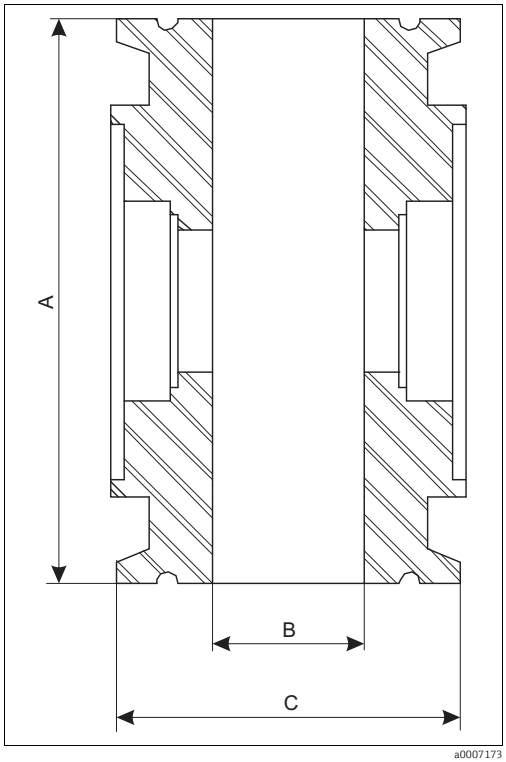
Design



Cross-sectional view of OUA260

1 Process connection
2 Window ring
3 Connecting thread for lamp housing
4 Optical windows
5 Connecting thread for sensor housing

Dimensions



Dimensions of OUA260

A Flange spacing
B Bore
C Flange diameter

Dimensions depend on process connection.

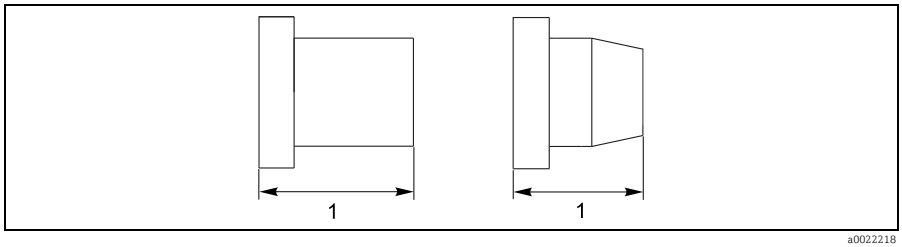
For Swagelock BVCO, Swagelock Tube and Tube Stub please contact the manufacturer for sizes.

Process	Line size	Flange spacing (A)	Bore (B)	Flange diameter (C)
Tri-Clamp	¼"	82.55 mm (3.25")	4.57 mm (0.180")	24.99 mm (0.984")
Tri-Clamp	½"	82.55 mm (3.25")	9.53 mm (0.375")	24.99 mm (0.984")
Tri-Clamp	¾"	82.55 mm (3.25")	15.24 mm (0.600")	24.99 mm (0.984")
Tri-Clamp	1"	82.55 mm (3.25")	22.1 mm (0.870")	50.39 mm (1.984")
Tri-Clamp	1½"	82.55 mm (3.25")	36.09 mm (1.421")	50.39 mm (1.984")
Tri-Clamp	2"	82.55 mm (3.25")	45.0 mm (1.856")	63.91 mm (2.516")
Tri-Clamp	2½"	88.8 mm (3.5")	59.84 mm (2.356")	77.39 mm (3.047")
Tri-Clamp	3"	114.30 mm (4.5")	72.54 mm (2.856")	90.91 mm (3.579")
Tri-Clamp	4"	123.80 mm (4.88")	96.77 mm (3.81")	118.92 mm (4.682")
RFF150	1"	17.46 mm (6.88")	25.40 mm (1.00")	107.95 mm (4.25")
RFF150	2"	190.50 mm (7.50")	47.49 mm (1.87")	152.40 mm (6.00")
RFF150	3"	203.20 mm (8.0")	69.85 mm (2.75")	190.50 mm (7.5")
RFF150	4"	2286.00 mm (9.0")	95.25 mm (3.75")	228.60 mm (9.0")
RFF300	1"	174.625 mm (6.88")	26.67 mm (1.05")	123.95 mm (4.88")
RFF300	2"	190.50 mm (7.50")	47.498 mm (1.87")	165.10 mm (6.5")
RFF300	3"	203.20 mm (8.0")	69.85 mm (2.75")	209.55 mm (8.25")
RFF300	4"	228.60 mm (9.0")	95.25 mm (3.75")	254.00 mm (10.0")
NPT-SS	½"	148.59 mm (5.85")	½" Standard NPT	N/A
NPT-SS	1"	101.60 mm (4.0")	1" Standard NPT	N/A
NPT-SS	2"	101.60 mm (4.0")	2" Standard NPT	N/A
NPT-Kynar	½"	71.12 mm (2.8")	½" Standard NPT	N/A
NPT-Kynar	1"	101.60 mm (4.0")	1" Standard NPT	N/A

Window types and path lengths

Process connection	Tri-Clamp					
Pipe size **Path length**	0.25" 0.50" 0.75"	1.0"LV 1.5"LV	2.0"	2.5"	3.0"	4.0"
0.5 mm/POPL	19 mm + 18.5 mm	24 mm + 23.5 mm	33.5 mm + 34 mm			
1 mm/POPL	18 mm+ 19 mm	23 mm + 24 mm	33.5 mm + 33.5 mm			
2 mm	18 mm + 18 mm	23 mm + 23 mm				
2 mm/POPL	18 mm+ 18 mm	23 mm + 23 mm				
5 mm	14 mm + 19 mm	19 mm + 24 mm	31.5 mm + 31.5 mm			
5 mm/POPL	16.5 mm + 16.5 mm	21.5 mm + 21.5 mm	31.5 mm + 31.5 mm			
10 mm	14 mm + 14 mm	19 mm + 19 mm	29 mm + 29 mm	34 mm + 36.8 mm		
20 mm	9 mm + 9 mm	14 mm + 14 mm	24 mm + 24 mm	29 mm + 31.5 mm	34 mm + 34 mm	
30 mm		9 mm+ 9 mm	19 mm + 19 mm	21.5 mm + 29 mm	29 mm + 29 mm	
40 mm			14 mm + 14 mm	19 mm + 21.5 mm	24 mm + 24 mm	36.8 mm + 36.8 mm
50 mm			9 mm + 9 mm	14 mm + 16.5 mm	19 mm + 19 mm	31.5 mm + 31.5 mm
60 mm				9 mm + 9 mm	14 mm + 14 mm	24 mm + 29 mm
70 mm					9 mm + 9 mm	21.5 mm + 21.5 mm
80 mm						16.5 mm + 16.5 mm
90 mm						9 mm + 14 mm

Process connection	NPT SS	RFF 150/300		
Pipe size **Path length**	0.5" 1.0" 2.0"	1.0"/2.0"	3.0"	4.0"
0.5 mm/POPL	33.5 mm + 34 mm	33.5 mm + 34 mm		
1 mm/POPL	33.5 mm + 33.5 mm	33.5 mm + 33.5 mm		
2 mm				
2 mm/POPL				
5 mm	31.5 mm + 31.5 mm	31.5 mm + 31.5 mm		
5 mm/POPL	31.5 mm + 31.5 mm	31.5 mm + 31.5 mm		
10 mm	29 mm + 29 mm	29 mm + 29 mm		
20 mm	24 mm + 24 mm	24 mm + 24 mm	34 mm + 34 mm	
30 mm	19 mm + 19 mm	19 mm + 19 mm	29 mm + 29 mm	
40 mm	14 mm + 14 mm	14 mm + 14 mm	24 mm + 24 mm	36.8 mm + 36.8 mm
50 mm	9 mm + 9 mm	9 mm + 9 mm	14 mm + 24 mm	31.5 mm + 31.5 mm
60 mm			14 mm + 14 mm	24 mm + 29 mm
70 mm			9 mm + 9 mm	21.5 mm + 21.5 mm
80 mm				16.5 mm + 16.5 mm
90 mm				9 mm + 14 mm



Length measurement of two available window types
1 Window length

Weight

TC ¼", 316 SS: 1.14 kg (2.51 lbs)
TC 1", 316 SS: 1.39 kg (3.07 lbs)
TC 2", 316 SS: 1.88 kg (4.15 lbs)
TC 4", 316 SS: 3.38 kg (7.45 lbs)

Material

Flow assembly: stainless steel AISI 316L, Kynar (further materials available on request)
Windows: Pyrex, quartz, sapphire
O-rings: Viton, silicone, EPDM, Kalrez (USP Class VI)

Kynar is not suitable for explosive areas.

Ordering information

Product page

You can create a complete and valid order code by using the configurator on the internet product page.

Enter the following address to access the product page:
www.products.endress.com/OUA260

Online configurator

1. You can choose from the following options on the product page located on the right:

Product page function
:: Add to product list
:: Price & order information
:: Compare this product
:: Configure this product

2. Click "Configure this product".
3. The configurator opens in a separate window. You can now configure your device and receive the complete order code that applies for the device.
4. Afterwards, export the order code as a PDF or Excel file. To do so, click the appropriate button at the top of the page.

Product structure

The following product structure represents the status of printing. You can create a complete and valid order code on the Internet using the configurator tool.

	Sensor type
A	for OUSAF44/OUSAF46
B	for OUSAF12/OUSAF22
C	for OUSAF13
D	for OUSTF10
E	for B60x

		Process connection
A1	Tri-Clover 316 L
A2	Tri-Clover Kynar, non ex
B1	Flange ASME RF Class 150, 316 SS
B2	Flange ASME RF Class 300, 316 SS
D1	Female NPT, 316 SS
D2	Female NPT, Kynar, non ex
E1	Swagelock BVCO
E2	Swagelock Tube
F1	Tube Stub
Y9	Special version, TSP-no. to be spec.

			Mean diameter
A	0.25"
B	0.375"
C	0.5"
D	0.75"
E	1" low volume
F	1" Standard
G	1.5" low volume
H	1.5" Standard
I	2"
J	2.5"
K	3"
L	4"
Y	Special version, TSP-no. to be spec.

				Optical pathlength (OPL)
01	0.5 mm with POPL
03	1 mm with POPL
04	2 mm Standard
05	2 mm with POPL
06	5 mm Standard
07	5 mm with POPL
08	10 mm Standard
09	20 mm Standard

				Optical pathlength (OPL)							
				10	30 mm Standard						
				11	40 mm Standard (for TF instruments)						
				12	50 mm Standard						
				13	60 mm Standard						
				14	70 mm Standard						
				15	80 mm Standard						
				16	90 mm Standard						
				80	not needed						
				99	Special version, TSP-no. to be spec.						
					Window material						
					A	Pyrex					
					B	Quartz					
					C	Sapphire					
					X	without windows					
						Sealing material					
						1	EPDM - FDA				
						2	Kalrez - FDA				
						3	Silicone - FDA				
						4	Viton - FDA				
						9	Special version, TSP-no. to be spec.				
							Air purge				
							A	Not used			
							B	Standard			
							Y	Standard version, TSP-no. to be spec.			
								Certificate			
								1	Basic package		
								3	Life Science package		
								5	Basic package + CRN pressure		
								6	Life Science package + CRN pressure		
								9	Special version, TSP-no. to be spec.		
									Options		
									A	No options	
									B	Mounting holes	
									Y	Special version, TSP-no. to be spec.	
											Marking
										Z1	Tagging (TAG), see additional spec.
OUA260-											complete order code

Availability matrix for flow assembly OUA260

Please refer to the following tables to determine compatible options. Check marks indicate compatibility. Combinations without check marks are not Standard Products.
For information on Technical Special Products (TSP) please contact your local service or sales representation.

Process connection (OUA260-*xx*********)		**Mean diameter** (OUA260-***x*******)										
		A 0.25"	B 0.375"	C 0.5"	D 0.75"	E 1" LV	F 1" Std	G 1.5" LV	I 2"	J 2.5"	K 3"	L 4"
A1	Tri-Clamp SS	✔		✔	✔	✔		✔	✔	✔	✔	✔
A2	Tri-Clamp Kynar	✔		✔	✔							
B1	RFF 150						✔		✔		✔	✔
B2	RFF 300						✔		✔		✔	✔
D1	FNPT SS			✔			✔		✔			
D2	FNPT Kynar			✔			✔					
E1	Swage BVCO	✔	✔	✔								
E2	Swage Tube	✔	✔	✔	✔	✔						
F1	Tube Stub		✔									

Pathlength (OUA260-****xx*****)		**Mean diameter** (OUA260-***x*******)													
		A 0.25"	B 0.375"	C 0.5" [1]	C 0.5" [2]	C 0.5" [3]	D 0.75"	D 0.75" [4]	E 1" LV	F 1" Std	G 1.5" LV	I 2"	J 2.5"	K 3"	L 4"
01	0.5 mm/POPL	✔	✔	✔	✔		✔		✔		✔				
03	1 mm/POPL	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
04	2 mm	✔	✔	✔	✔		✔		✔		✔				
05	2 mm/POPL	✔	✔	✔	✔		✔		✔		✔				
06	5 mm	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
07	5 mm/POPL	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
08	10 mm	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		
09	20 mm	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
10	30 mm				✔	✔			✔	✔	✔	✔	✔	✔	
11	40 mm					✔				✔		✔	✔	✔	✔
12	50 mm					✔				✔		✔	✔	✔	✔
13	60 mm												✔	✔	✔
14	70 mm													✔	✔
15	80 mm														✔
16	90 mm														✔

1) Tri-Clamp and Swagelock flow assemblies (OUA260-*xx********; A1, A2, E1, E2)

2) Kynar NPT flow assemblies (OUA260-*xx********; D2)

3) SS NPT flow assemblies (OUA260-*xx********; D1)

4) SS NPT flow assemblies (OUA260-*xx********; D1)

Scope of delivery

Ordered assembly version

Accessories

Sensors

OUSAF44
- Optical, single-wavelength sensor for measurement of UV absorption
- Hygienic design
- Ordering according to product structure, see Technical Information TI416C/07/EN

OUSAF45
- Optical, single-wavelength sensor for measurement of absorption in the high UV region
- CIP-, SIP-resilient design
- Ordering according to product structure

OUSAF46
- Optical, dual-wavelength sensor for measurement of UV absorption
- Hygienic design
- Ordering according to product structure

OUSAF12
- NIR sensor for measurement of suspended solids with optical density
- Hygienic design
- Ordering according to product structure

OUSAF22
- Dual wavelength sensor for measurement of concentration and color
- Hygienic design
- Ordering according to product structure

OUSTF10
- Turbidity sensor for measurement of low turbidity values
- Uses scattered light technology
- CIP and SIP resistant
- Ordering according to product structure

Cables

OUK10 cable set
- Pre-terminated and labeled cables for connection of OUSAF12 sensors
- Ordering according to product structure

OUK20 cable set
- Pre-terminated and labeled cables for connection of OUSTF10 and OUSAF2x sensors
- Ordering according to product structure

OUK40 cable set
- Pre-terminated and labeled cables for connection of OUSAF4x sensors
- Ordering according to product structure

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