

### Features

- Two measuring channels
- All stainless steel and seawater resistant FLUXUS F801 is ATEX/IECEX certified and thus suited for offshore applications
- Communication interfaces Modbus RTU and HART available

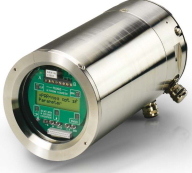
### Applications

- Chemical industry
- Petrochemical industry
- Oil and gas industry



## Transmitter

### Technical data

	FLUXUS F801**-A1	FLUXUS F801C24
order code	F801**-A10****-A F801**-A10****-P	F801**-A10****-FF F801**-A1B
		
design	explosion-proof offshore device	
supported transducer frequencies	K, M, P, Q on request: G	
<b>measurement</b>		
measurement principle	transit time difference correlation principle, automatic NoiseTrek selection for measurements with high gaseous or solid content	
flow velocity	m/s	0.01...25
repeatability	0.15 % MV ±0.005 m/s	
fluid	all acoustically conductive liquids with < 10 % gaseous or solid content in volume (transit time difference principle)	
temperature compensation	corresponding to the recommendations in ANSI/ASME MFC-5.1-2011	
<b>measurement uncertainty (volumetric flow rate)</b>		
measurement uncertainty of the measuring system <sup>1</sup>	±0.3 % MV ±0.005 m/s	
measurement uncertainty at the measuring point <sup>2</sup>	±1 % MV ±0.005 m/s	
<b>transmitter</b>		
power supply	<ul style="list-style-type: none"> <li>• 100...230 V/50...60 Hz or</li> <li>• 20...32 V DC or</li> <li>• on request: 11...16 V DC</li> </ul>	• 24 V DC ±10 %
power consumption	W < 8	< 4
number of measuring channels	1, optional: 2	
damping	s	0...100 (adjustable)
measuring cycle	Hz	100...1000 (1 channel)
response time	s	1 (1 channel), option: 0.07
housing material	stainless steel 316/316L (1.4401, 1.4404, 1.4432)	
degree of protection	IP66	
dimensions	mm	see dimensional drawing
weight	kg	6.6
fixation	wall mounting, 2" pipe mounting	
ambient temperature	°C	-20...+60
display	2 x 16 characters, dot matrix, backlight	
menu language	English, German, French, Dutch, Spanish	
<b>explosion protection</b>		
• ATEX/IECEX		
marking	CE 0637 Ex II 2G Ex db eb IIC T6 Gb Ex tb IIIC T100 °C Db T <sub>a</sub> -20...+60 °C	CE 0637 Ex II 2G Ex db eb [ib] IIC T4 Gb T <sub>a</sub> -20...+50 °C
certification ATEX	IBExU05ATEX1078	
certification IECEx	IECEX IBE 12.0020	
intrinsic safety parameters	U <sub>m</sub> = 250 V intrinsically safe outputs: U <sub>i</sub> = 28.2 V P <sub>i</sub> = 0.76 W L <sub>i</sub> , C <sub>i</sub> negligible	
<b>measuring functions</b>		
physical quantities	volumetric flow rate, mass flow rate, flow velocity	
totaliser	volume, mass	
calculation functions	average, difference, sum (2 measuring channels necessary)	
diagnostic functions	sound speed, signal amplitude, SNR, SCNR, standard deviation of amplitudes and transit times	

<sup>1</sup> with aperture calibration of the transducers

<sup>2</sup> for transit time difference principle and reference conditions

<sup>3</sup> connection of the RS232 interface outside the explosive atmosphere (housing cover is open)

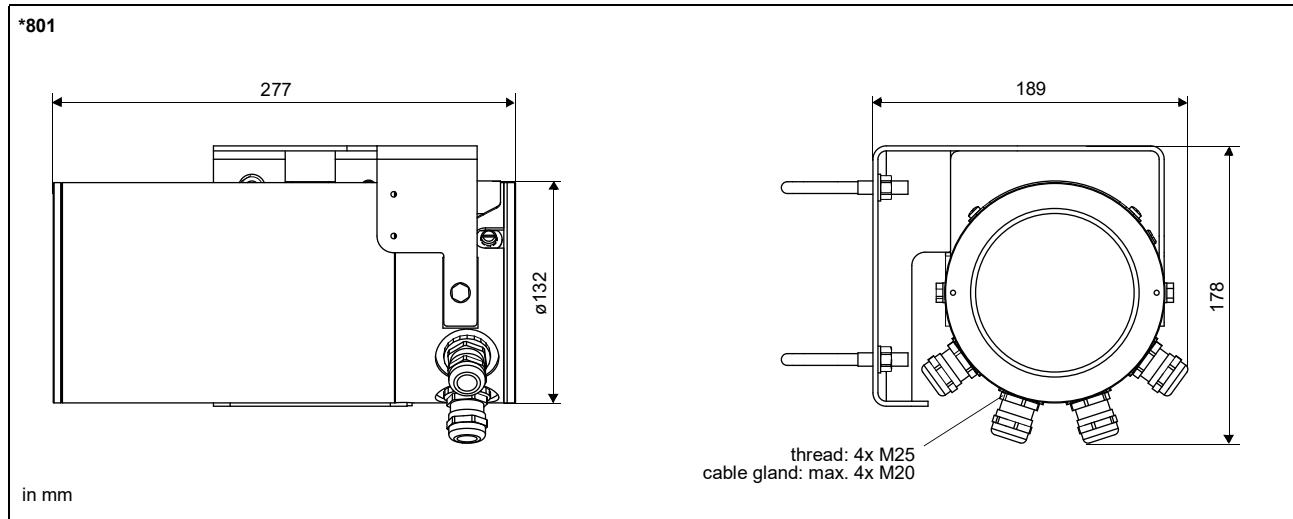
		FLUXUS F801**-A1	FLUXUS F801C24
<b>communication interfaces</b>			
service interfaces		<ul style="list-style-type: none"> <li>• RS232<sup>3</sup></li> <li>• USB (with adapter)<sup>3</sup></li> </ul>	
process interfaces		max. 1 option: <ul style="list-style-type: none"> <li>• RS485 (ASCII sender)</li> <li>• Modbus RTU</li> <li>• HART</li> </ul>	-
<b>accessories</b>			
data transmission kit		RS232 RS232 - USB	
software		<ul style="list-style-type: none"> <li>• FluxDiagReader: reading of measured values and parameters, graphical presentation</li> <li>• FluxDiag (optional): reading of measurement data, graphical presentation, report generation</li> </ul>	
<b>data logger</b>			
loggable values		all physical quantities, totalised physical quantities and diagnostic values	
capacity		> 100 000 measured values	
<b>outputs</b>			
The outputs are galvanically isolated from the transmitter.			
number		<ul style="list-style-type: none"> <li>• current output: 1...2</li> <li>• binary output (open collector): 1...2</li> </ul> or <ul style="list-style-type: none"> <li>• current output: 1...2</li> <li>• binary output (open collector): 1</li> <li>• binary output (Reed relay): 1</li> </ul>	<ul style="list-style-type: none"> <li>• frequency output: 1</li> <li>• binary output (open collector): 1</li> </ul>
			<ul style="list-style-type: none"> <li>• current output: 1</li> <li>• binary output (open collector): 1</li> </ul>
<b>• current output</b>			
range	mA	0/4...20	4...20
accuracy		0.1 % MV ±15 µA	0.1 % MV ±15 µA
active output		R <sub>ext</sub> < 500 Ω	-
passive output		U <sub>ext</sub> = 4...26.4 V, depending on R <sub>ext</sub> (R <sub>ext</sub> < 1 kΩ at 26.4 V)	U <sub>ext</sub> = 4...28.2 V, depending on R <sub>ext</sub> (R <sub>ext</sub> < 1 kΩ at 28.2 V) intrinsic safety
current output in HART mode		I1	-
• range	mA	4...20	-
• active output		U <sub>int</sub> = 24 V	-
• passive output		U <sub>ext</sub> = 10...24 V	-
<b>• frequency output</b>			
range	kHz	-	0...5
open collector		-	30 V/100 mA I <sub>off</sub> = 0.8 mA optional: 8.2 V DIN EN 60947-5-6 (NAMUR)
<b>• binary output</b>			
open collector		24 V/4 mA	30 V/100 mA I <sub>off</sub> = 0.8 mA
Reed relay		48 V/100 mA	24 V/4 mA intrinsic safety
binary output as alarm output			
• functions		limit, change of flow direction or error	
binary output as pulse output			
• functions		mainly for totalising	
• pulse value	units	0.01...1000	
• pulse width	ms	1...1000	

<sup>1</sup> with aperture calibration of the transducers

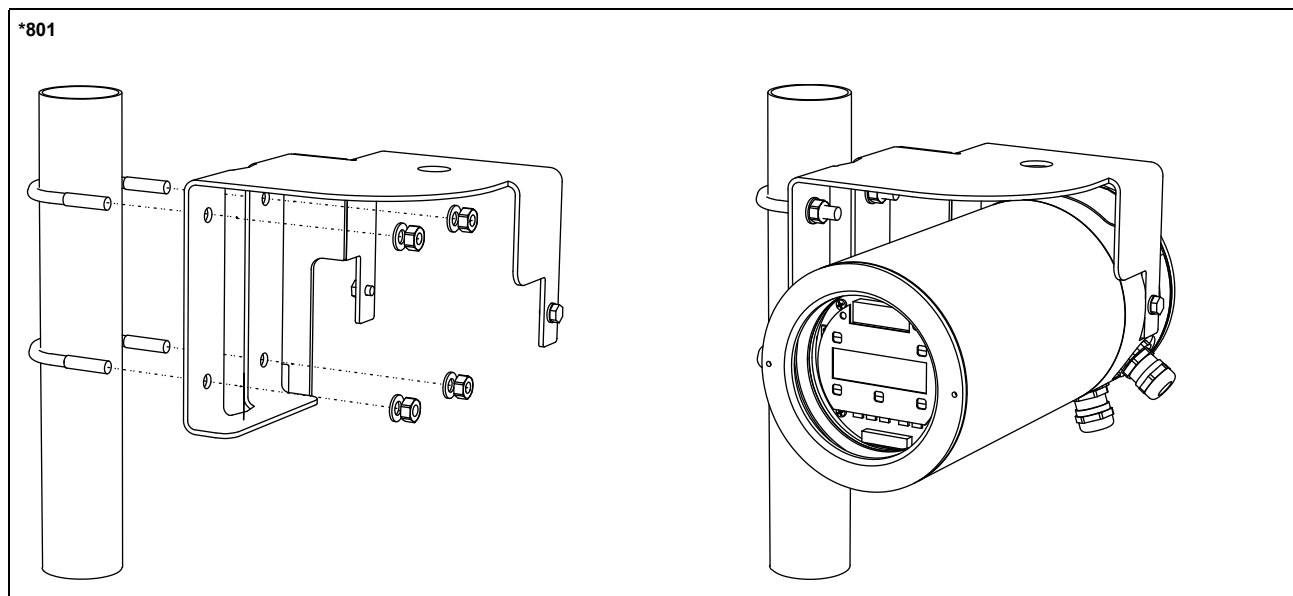
<sup>2</sup> for transit time difference principle and reference conditions

<sup>3</sup> connection of the RS232 interface outside the explosive atmosphere (housing cover is open)

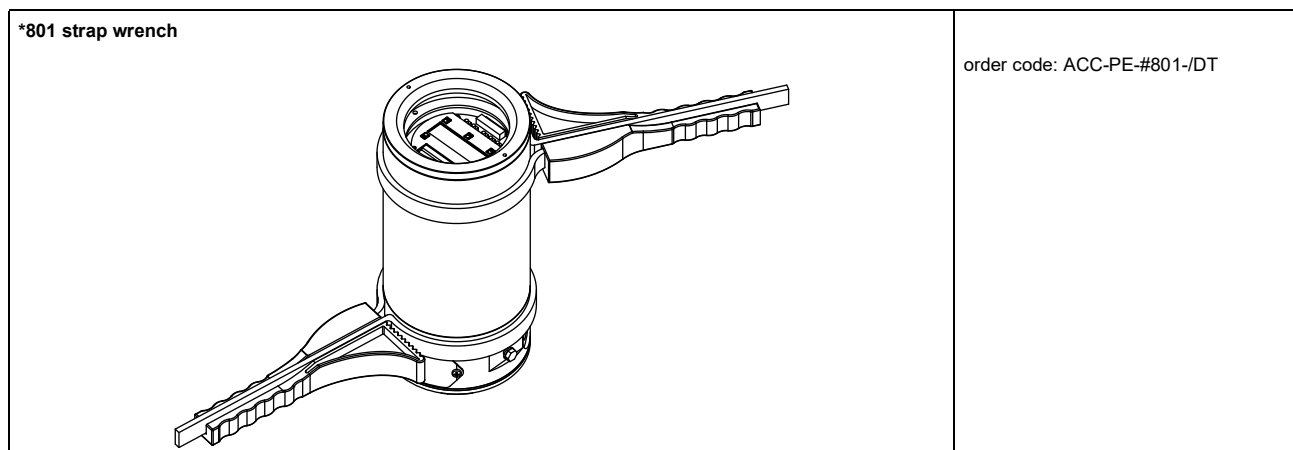
### Dimensions



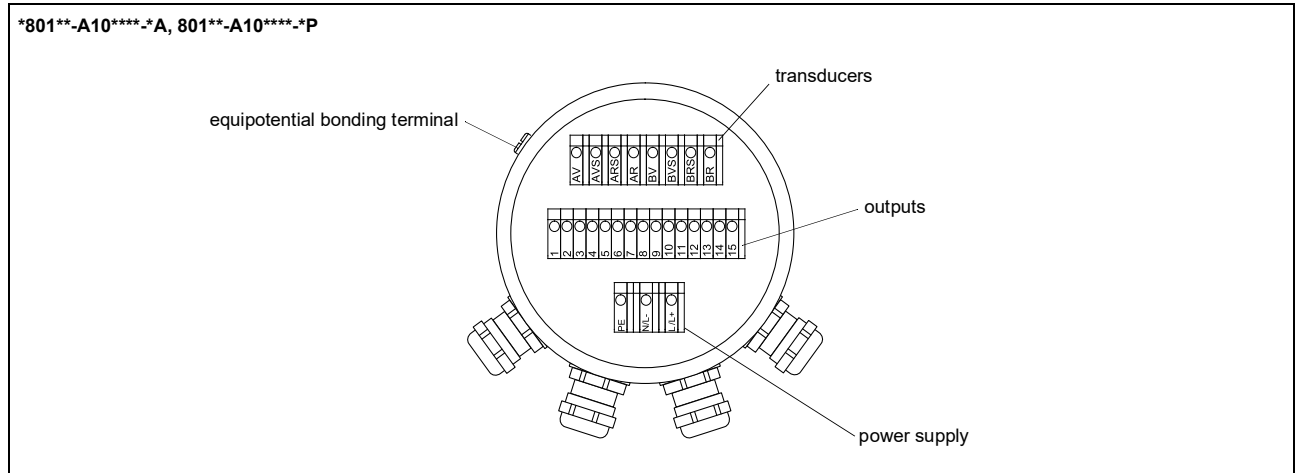
### Wall and 2" pipe mounting kit



### Strap wrench

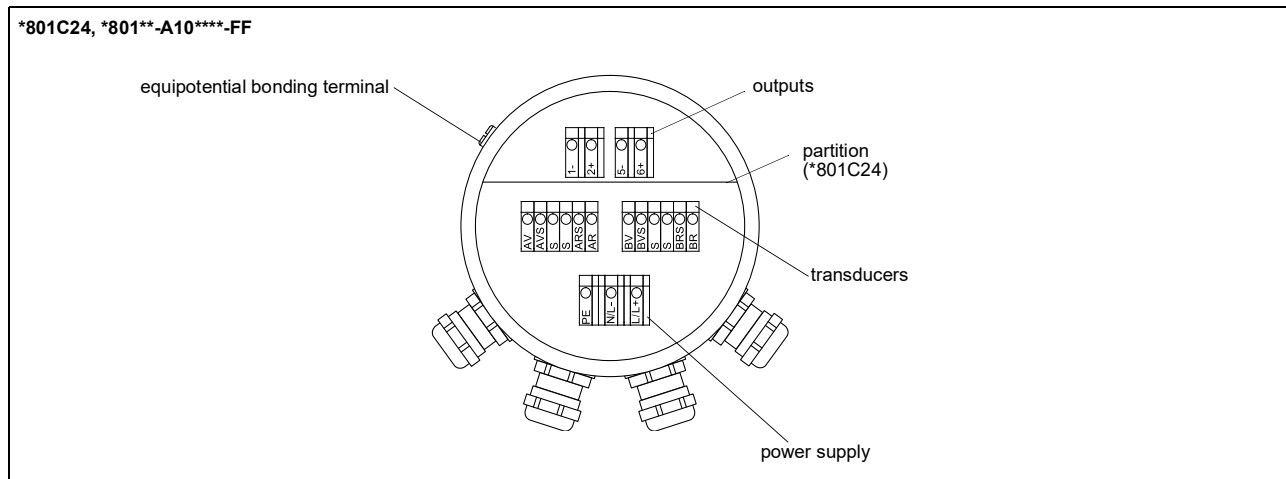


## Terminal assignment



power supply <sup>1</sup>				
AC		DC		
terminal	connection	terminal	connection	
L	phase	L+	+	
N	neutral	L-	-	
PE	earth	PE	earth	
transducers, extension cable				
measuring channel A		measuring channel B		transducer
terminal	connection	terminal	connection	
AV	signal	BV	signal	↑
AVS	internal shield	BVS	internal shield	
ARS	internal shield	BRS	internal shield	⌋
AR	signal	BR	signal	
cable gland	external shield	cable gland	external shield	↑ ⌋
outputs <sup>1</sup>				
terminal	connection			
1(-), 2(+)	current output I1			
3(-), 4(+)	current output I2 (optional)			
5(-), 6(+)	binary output B1 (open collector)			
7(-), 8(+)	binary output B2 (open collector, optional)			
9(a), 10(b)	binary output B1 (open collector, Reed relay, optional)			
11(a), 12(b)	binary output B2 (open collector, Reed relay, optional)			
13(B-), 14(A+), 15 (shield)	communication interface			

<sup>1</sup> cable (by customer): e.g. flexible wires, with insulated wire ferrules, wire cross-section: 0.25...2.5 mm<sup>2</sup>



power supply <sup>1</sup>				
<b>AC</b>		<b>DC</b>		
*801**-A10****-FF		*801C24, *801**-A10****-FF		
terminal	connection	terminal	connection	
L	phase	L+	+	
N	neutral	L-	-	
PE	earth	PE	earth	
transducers, extension cable				
measuring channel A		measuring channel B		transducer
terminal	connection	terminal	connection	
AV	signal	BV	signal	↑
AVS	internal shield	BVS	internal shield	
ARS	internal shield	BRS	internal shield	↕
AR	signal	BR	signal	
S	not connected	S	not connected	
cable gland	external shield	cable gland	external shield	↑ ↕
outputs <sup>1</sup>				
colour of terminals	*801C24	*801**-A10****-FF		
	blue (intrinsic safety)	green		
terminal	connection			
1(-), 2(+)	current output I1	frequency output F1		
5(-), 6(+)	binary output B1	binary output B1		

<sup>1</sup> cable (by customer): e.g. flexible wires, with insulated wire ferrules, wire cross-section: 0.25...2.5 mm<sup>2</sup>

# Transducers

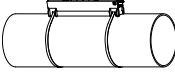
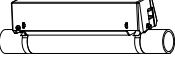
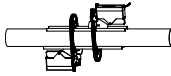



## Overview

### Shear wave transducers

		technical type				
		G	K	M	P	Q
<b>zone 1 normal temperature range</b>		CDG1N81 CLG1N81	CDK1N81 CLK1N81	CDM2N81 CLM2N81	CDP2N81 CLP2N81	CDQ2N81 CLQ2N81
<b>zone 1 IP68</b>		CDG1L11	CDK1L11	CDM2L11	CDP2L11	
<b>zone 1 extended temperature range</b>		CDG1E83 CLG1E83	CDK1E83 CLK1E83	CDM2E85 CLM2E85	CDP2E85 CLP2E85	CDQ2E85 CLQ2E85
<b>inner pipe diameter d</b>						
min. extended	mm	400	100	50	25	10
min. recommended	mm	500	200	100	50	25
max. recommended	mm	4000	2000	1000	400	150
max. extended	mm	6500	2400	1200	480	240
<b>pipe wall thickness</b>						
min.	mm	11	5	2.5	1.2	0.6

for further data see Technical specification TS\_F8xx-transducersVx-xxx\_Leu

### Transducer mounting fixture

Variofix L	Variofix C	transducer box WI for WaveInjector with chains
		
Variofix L with bolt mounting plates	Variofix C with bolt mounting plates	transducer box WI for WaveInjector with threaded rods
		
outer pipe diameter: max. 48 mm	outer pipe diameter: <b>VCM:</b> max. 46 mm <b>VCQ:</b> max. 36 mm	outer pipe diameter: 35...380 mm

for further data see Technical specification TS\_F8xx-transducersVx-xxx\_Leu

### Coupling materials for transducers

	normal temperature range		extended temperature range		WaveInjector		
	< 100 °C	< 170 °C	< 150 °C	< 200 °C	200...240 °C	< 280 °C	280...630 °C
< 24 h	coupling compound type N or coupling foil type VT	coupling compound type E or coupling foil type VT	coupling compound type E or coupling foil type VT	coupling compound type E or H or coupling foil type VT	coupling foil type TF	coupling foil type A and coupling foil type VT	coupling foil type B and coupling foil type VT
long time measurement	coupling foil type VT	coupling foil type VT	coupling foil type VT	coupling foil type VT			

for further data see Technical specification TS\_F8xx-transducersVx-xxx\_Leu

### Connection systems

connection system T1		
connection with extension cable	direct connection	transducers technical type
<p>JB01</p>	<p>transmitter</p>	<p>****G*</p>
<p>JB01</p>	<p>transmitter</p>	<p>****L*</p>

for further data see Technical specification TS\_F8xx-transducersVx-xxX\_Leu