

### Features

- Two measuring channels
- Flameproof/explosion proof housing for hazardous areas
- Intrinsic safe process inputs for the integration of external pressure and temperature sensors
- More precise measurement at unfavorable measuring points through integrated disturbance correction
- Bidirectional communication and HART support
- Certification: ATEX/IECEX zone 1




### Applications

- Chemical industry
- Petrochemical industry
- Oil and gas industry



# Transmitter

## Technical data

	FLUXUS G831 (831-AA1)	FLUXUS G831 (831-AA2)
		
design	explosion-proof field device zone 1 (intrinsic safety: HART)	explosion-proof field device zone 1 (intrinsic safety: inputs, HART)
<b>measurement</b>		
measurement principle	transit time difference correlation principle	
synchronised channel averaging	x (2 measuring channels necessary)	
flow velocity	m/s	measuring range: 0.01...35, depending on pipe diameter
repeatability	0.15 % MV ±0.005 m/s	
fluid	all acoustically conductive gases, e.g. nitrogen, air, oxygen, hydrogen, argon, helium, ethylene, propane	
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	±1...2 % MV ±0.005 m/s, depending on the application	
<b>transmitter</b>		
power supply	20...32 V DC, U <sub>m</sub> = 120 V	
power consumption	W	< 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: 0.02
housing material	cast aluminum, special heavy-duty coating	
degree of protection	IP66	
dimensions	mm	see dimensional drawing
weight	kg	6.5
fixation	wall mounting, 2" pipe mounting	
ambient temperature	°C	-40...+60 (< -20 without operation of the display)
display	128 x 64 pixels, backlight	
menu language	English, German, French, Spanish, Dutch, Russian, Polish, Turkish, Italian	
<b>explosion protection</b>		
• ATEX/IECEX		
marking	CE 0637  II2G II2D Ex db eb ia IIC T6 Gb Ex tb ia IIC T100 °C Db T <sub>a</sub> -40...+60 °C	CE 0637  II(1)2G II(1)2D Ex db eb ia [ia] IIC T6 Gb Ex tb ia [ia] IIC T100 °C Db T <sub>a</sub> -40...+60 °C
certification ATEX	IBExU20ATEX1103 X	IBExU20ATEX1103 X
certification IECEX	IECEX IBE 20.0015X	IECEX IBE 20.0015X
<b>measuring functions</b>		
physical quantities	operating volumetric flow rate, standard 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	
<b>communication interfaces</b>		
service interfaces	measured value transmission, parametrisation of the transmitter: USB <sup>2</sup>	
process interfaces	HART (intrinsic safety, optional)	
<b>accessories</b>		
data transmission kit	USB cable	
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, parametrisation of the transmitter</li> </ul>	
<b>data logger</b>		
loggable values	all physical quantities, totalised physical quantities and diagnostic values	
capacity	max. 800 000 measured values	

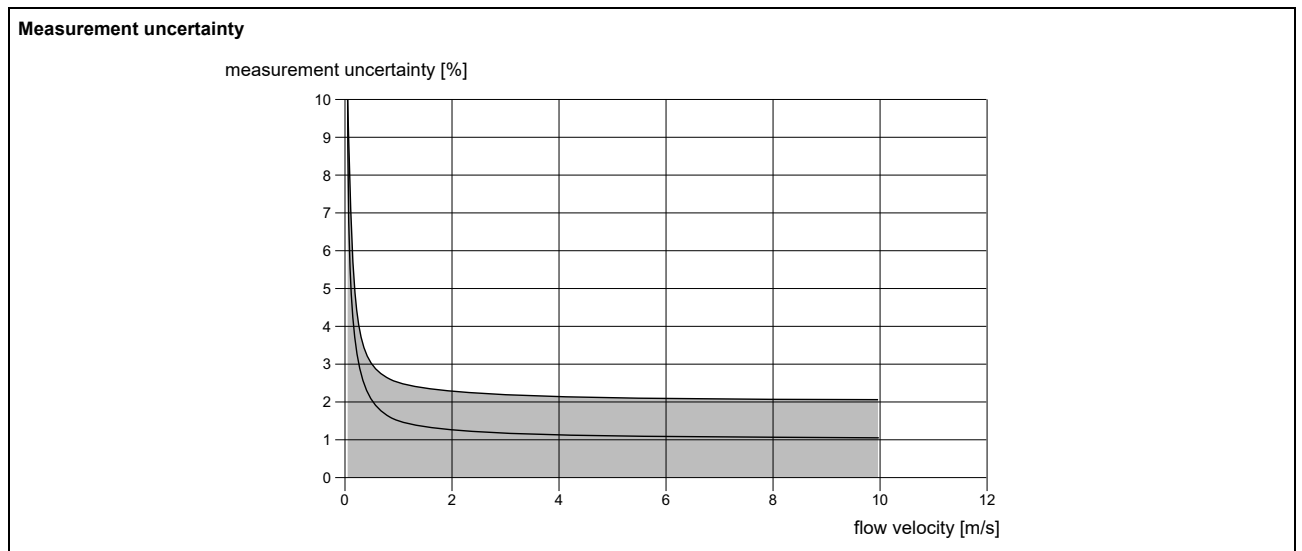
<sup>1</sup> with aperture calibration of the transducers

<sup>2</sup> outside the explosive atmosphere (housing cover open)

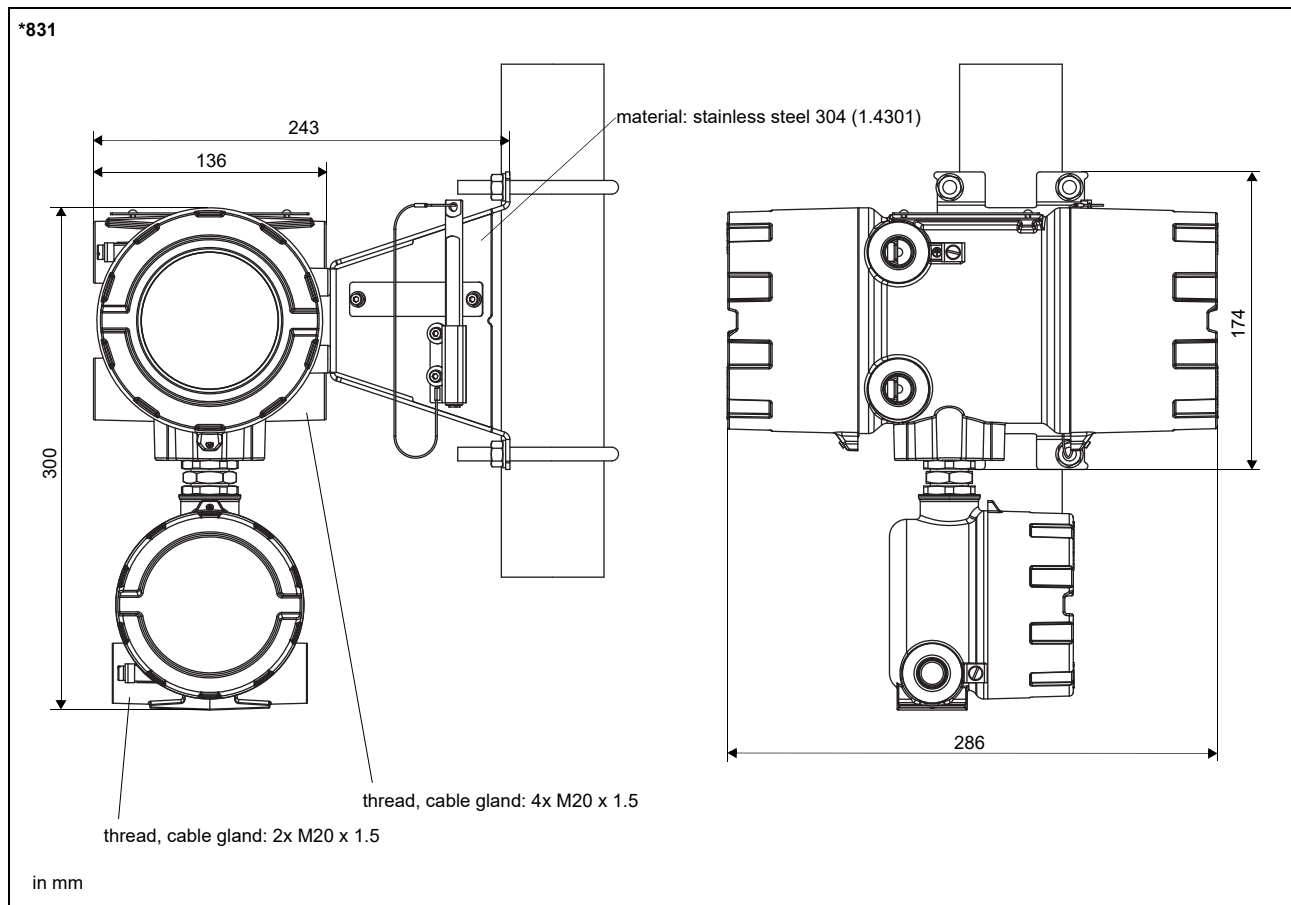
		FLUXUS G831 (831-AA1)	FLUXUS G831 (831-AA2)
<b>outputs</b>			
		The outputs are galvanically isolated from the transmitter.	
<b>• current output</b>			
number		1	
range	mA	4...20 (3.2...24)	
accuracy		0.04 % MV ±3 µA	
passive output		U <sub>ext</sub> ≤ 29 V DC, depending on R <sub>ext</sub> (R <sub>ext</sub> < 830 Ω at 29 V)	
current output in HART mode			
• range	mA	4...20 (3.5...22)	
• passive output		U <sub>ext</sub> = 9...29 V DC	
intrinsic safety parameters		U <sub>i</sub> = 29 V I <sub>i</sub> = 100 mA P <sub>i</sub> = 0.725 W C <sub>i</sub> = 1 nF L <sub>i</sub> = 50 nH	
<b>inputs</b>			
<b>• temperature input</b>			
number		max. 1	
type		Pt100/Pt1000	
connection		4-wire	
range	°C	-150...+560	
resolution	K	0.01	
accuracy		±0.01 % MV ±0.03 K	
intrinsic safety parameters		U <sub>o</sub> = 9.2 V I <sub>o</sub> = 25 mA P <sub>o</sub> = 0.057 W C <sub>o</sub> = 4283 nF L <sub>o</sub> = 57 mH	
<b>• current input</b>			
number		max. 1	
accuracy		±0.1 % MV ±0.01 mA	
active input		U <sub>int</sub> < 20 V, R <sub>int</sub> = 360 Ω	
• range	mA	0...20	
• intrinsic safety parameters		U <sub>o</sub> = 29.2 V I <sub>o</sub> = 88 mA P <sub>o</sub> = 0.64 W C <sub>o</sub> = 73 nF L <sub>o</sub> = 4.1 mH	

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

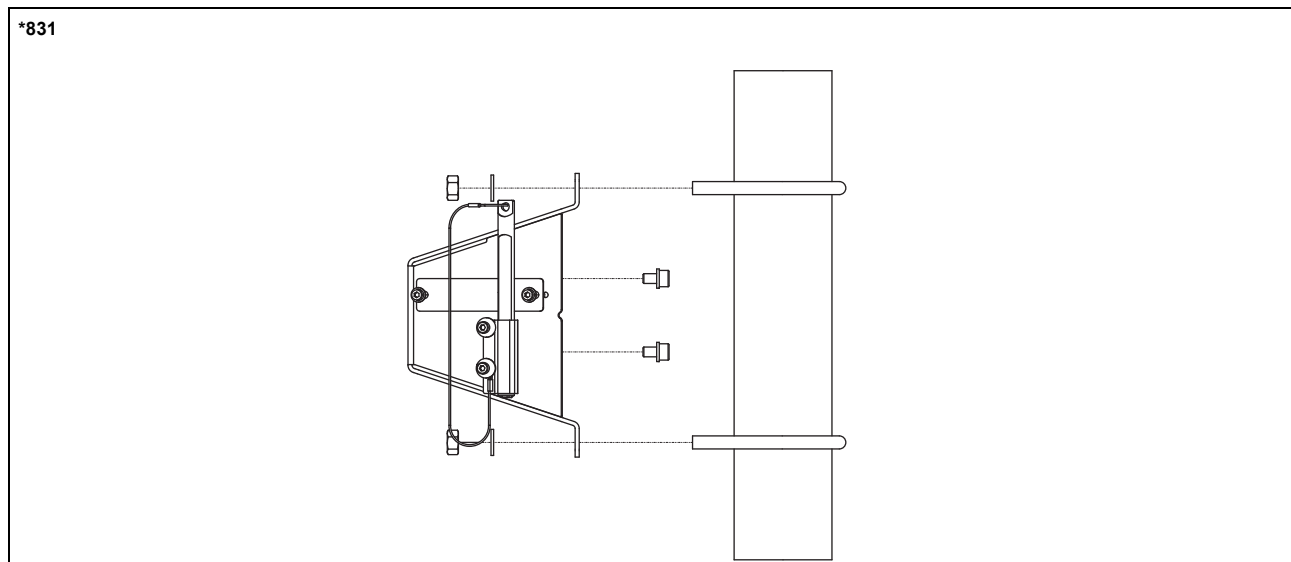
<sup>2</sup> outside the explosive atmosphere (housing cover open)



## Dimensions



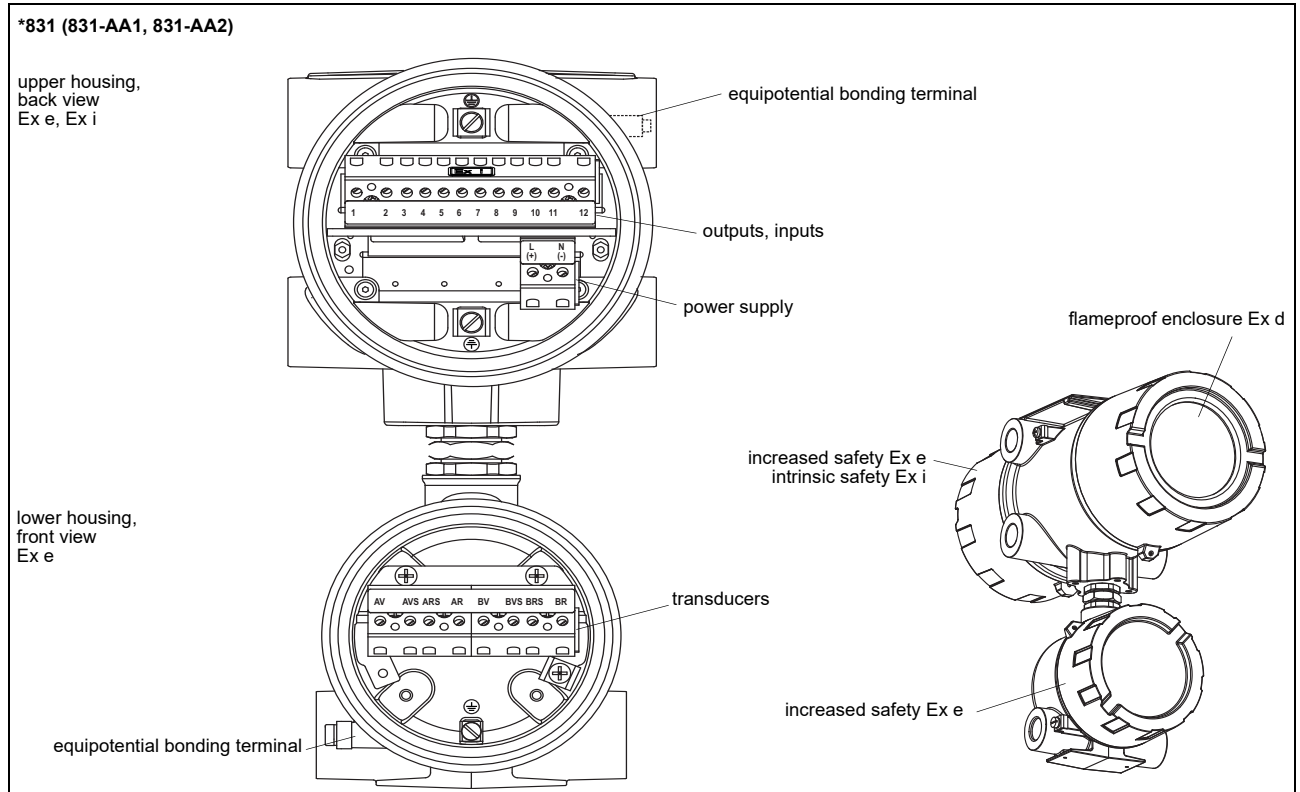
## 2" pipe mounting kit



## Storage

- store within the original package
- keep all openings closed
- protect against sunlight
- store in a dry and dust-free place
- do not store outdoors
- storing temperature: -40...+60 °C

### Terminal assignment



power supply <sup>1</sup>				
<b>DC</b>				
<b>terminal</b>		<b>connection</b>		
(+) (+)		+		
(-) (-)		-		
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, 2</sup>				
<b>terminal</b>		<b>connection</b>		
11+, 12-		current output, HART		
USB		type C Hi-Speed USB 2.0 Device	service (FluxDiag/FluxDiagReader)	
inputs <sup>2</sup>				
temperature probe				
<b>terminal</b>		<b>direct connection</b>	<b>connection with extension cable</b>	
3		red	red	
4		red/blue	blue	
5		white/blue	grey	
6		white	white	
current input <sup>1</sup>				
<b>terminal</b>		<b>connection</b>		
1		-		
2		+		

<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>

<sup>2</sup> The number, type and terminal assignment are customised.

## Transducers

### Shear wave transducers

	technical type					
	G	K	M	P	Q	
<b>zone 1</b> <b>normal temperature range</b>	G DG1N81 GLG1N81	G DK1N81 GLK1N81	G DM2N81 GLM2N81	G DP2N81 GLP2N81	G DQ2N81 GLQ2N81	
<b>zone 1</b> <b>IP68</b>	G DG1L11	G DK1L11	G DM2L11	G DP2L11		
<b>zone 1</b> <b>extended temperature range</b>	G DG1E83 GLG1E83	G DK1E83 GLK1E83	G DM2E85 GLM2E85	G DP2E85 GLP2E85	G DQ2E85 GLQ2E85	
<b>inner pipe diameter d</b>						
min. extended	mm	180	60	30	15	7
min. recommended	mm	220	80	40	20	10
max. recommended	mm	900	300	150	50	22
max. extended	mm	1100	360	180	60	30
<b>pipe wall thickness</b>						
min.	mm	11	5	2.5	1.2	0.6
<b>fluid pressure</b>						
min. extended	bar	metal pipe: 20				
min.	bar	metal pipe: 30, plastic pipe: 1				



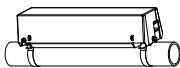
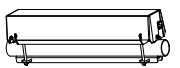
for further data see Technical specification TS\_G8xx-transducersVx-xxx\_Leu

### Lamb wave transducers

	technical type							
	F	G	H	K	M	P	Q	
<b>zone 1</b> <b>normal temperature range</b>	G RF1N83 GTF1N83	G RG1N83 GTG1N83	G RH1N83 GTH1N83	G RK1N83 GTK1N83	G RM1N83 GTM1N83	G RP1N83 GTP1N83	G RQ1N83 GTQ1N83	
<b>zone 1</b> <b>higher temperatures</b>		G RG1S83 GTG1S83	G RH1S83 GTH1S83	G RK1S83 GTK1S83	G RM1S83 GTM1S83			
<b>zone 1</b> <b>IP68</b>	G RF1LI3	G RG1LI3	G RH1LI3	G RK1LI3	G RM1LI3	G RP1LI3		
<b>fluid pressure</b>								
min. extended	bar	metal pipe: 10	metal pipe: 10	metal pipe: 10	metal pipe: 10 (d > 120 mm) 3 (d < 120 mm)	metal pipe: 3 (d < 60 mm)	metal pipe: 3 (d < 35 mm)	metal pipe: 3 (d < 15 mm)
min.	bar	metal pipe: 15 plastic pipe: 1	metal pipe: 15 plastic pipe: 1	metal pipe: 15 plastic pipe: 1	metal pipe: 15 (d > 120 mm) 10 (d < 120 mm) plastic pipe: 1	metal pipe: 10 (d > 60 mm) 5 (d < 60 mm) plastic pipe: 1	metal pipe: 10 (d > 35 mm) 5 (d < 35 mm) plastic pipe: 1	metal pipe: 10 (d > 15 mm) 5 (d < 15 mm) plastic pipe: 1
<b>inner pipe diameter d</b>								
min. extended	mm	220	180	110	60	30	15	7
min. recommended	mm	270	220	140	80	40	20	10
max. recommended	mm	1200	900	600	300	150	50	22
max. extended	mm	1600	1400	1000	360	180	60	30
<b>pipe wall thickness ****N**, ****L**</b>								
min.	mm	15	11	8	5	2.5	1.2	0.6
max.	mm	32	24	16	10	5	3	1.2
max. extended	mm	35	-	-	-	-	-	-
<b>pipe wall thickness ****S**</b>								
min.	mm		10.6	7.1	4.2	2.1		
max.	mm		23.7	15.8	9.5	4.7		

for further data see Technical specification TS\_G8xx-transducersVx-xxx\_Leu

### Transducer mounting fixture

Variofix L	Variofix L with bolt mounting plates	Variofix C	Variofix C with bolt mounting plates
			
	outer pipe diameter: max. 48 mm		outer pipe diameter: <b>VCM:</b> max. 46 mm <b>VCC:</b> max. 36 mm

for further data see Technical specification TS\_G8xx-transducersVx-xxx\_Leu

### Coupling materials for transducers

	normal temperature range		extended temperature range		
	< 100 °C	< 170 °C	< 150 °C	< 200 °C	200...240 °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
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\_G8xx-transducersVx-xxx\_Leu

### Damping material

	damping mat		damping coat
order code	ACC-PE-GNNN-/DPD2	ACC-PE-GNNN-/DPD1	ACC-PE-GNNN-/DPL1
type	E30R4	E30R3	

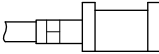
for further data see Technical specification TS\_G8xx-transducersVx-xxx\_Leu

### Connection systems

connection system T1		
connection with extension cable	direct connection	transducers technical type
<p>JB01</p>		****g*
<p>JB01</p>		****l)*

for further data see Technical specification TS\_G8xx-transducersVx-xxx\_Leu

## Temperature probes

<b>PT12N (order code: ACC-PE-Gxxx-/T332)</b>
<ul style="list-style-type: none"><li>• clamp-on</li><li>• ATEX-Zone 0 (intrinsic safety)</li></ul>
-45...+230 °C


see Technical specification TS\_PTVx-xxx\_Leu