

Features

- Two measuring channels
- Flameproof/explosion proof housing for hazardous areas
- Communication interfaces Modbus RTU and HART available
- Certification: ATEX/IECEX zone 1, FM Class I Div. 1

Applications

- Chemical industry
- Petrochemical industry
- Oil and gas industry



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Transmitter

Technical data

	FLUXUS G809**-A1	FLUXUS G809**-A1A	FLUXUS G809**-F1
			
design	explosion-proof field device 1 or 2 measuring channels zone 1	explosion-proof field device 1 or 2 measuring channels zone 1 (intrinsically safe current output)	explosion-proof field device 1 or 2 measuring channels FM Class I Div. 1
transducers	G****8*, G****LI*	G****8*, G****LI*	G**1N62
supported transducer frequencies	F, G, H, K, M on request: P, Q	F, G, H, K, M on request: P, Q	G, H, K, M on request: P, Q
measurement			
measurement principle	transit time difference correlation principle		
flow velocity	ft/s	0.03 to 115, depending on pipe diameter	
repeatability	0.15 % MV ±0.02 ft/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		
measurement uncertainty (volumetric flow rate)			
measurement uncertainty of the measuring system ¹	±0.3 % MV ±0.02 ft/s includes calibration certificate traceable to NIST		
measurement uncertainty at the measuring point	±1 to 3 % MV ±0.02 ft/s, contact FLEXIM for an application specific uncertainty evaluation		
transmitter			
power supply	• 100 to 230 V/50 to 60 Hz or • 20 to 32 V DC	• 20 to 32 V DC	• 100 to 230 V/50 to 60 Hz or • 20 to 32 V DC
power consumption	W	< 8	< 8
number of measuring channels	1, optional: 2		
damping	s	0 to 100 (adjustable)	
measuring cycle	Hz	100 to 1000 (1 channel)	
response time	s	1 (1 channel), option: 0.07	
housing material	cast aluminum EN AC 44200 mod, special heavy-duty coating (C5 according to EN ISO 12944)		
degree of protection	IP66		
dimensions	inch	see dimensional drawing	
weight	lb	15.7	
fixation	wall mounting, 2" pipe mounting		
ambient temperature	°F	-22 to +140 (< -4 without operation of the display)	-13 to +140 (< -4 without operation of the display)
display	2 x 16 characters, dot matrix, backlight		
menu language	English, German, French, Dutch, Spanish		
explosion protection			
• ATEX/IECEx			
marking	CE 0637 Ex II2G II2D Ex db eb IIC T6 Gb Ex tb IIIC T100 °C Db T _a -40...+60 °C	CE 0637 Ex II2G II2D Ex db eb ia IIC T6 Gb Ex tb ia IIIC T100 °C Db T _a -40...+60 °C	-
certification ATEX	IBExU11ATEX1022 X	IBExU11ATEX1022 X	-
certification IECEx	IECEx IBE 11.0006X	IECEx IBE 11.0006X	-
intrinsic safety parameters	-	U _m = 250 V U _i = 30 V DC I _i = 100 mA P _i = 0.75 W C _i = 3 nF L _i negligible	-

¹ with aperture calibration of the transducers

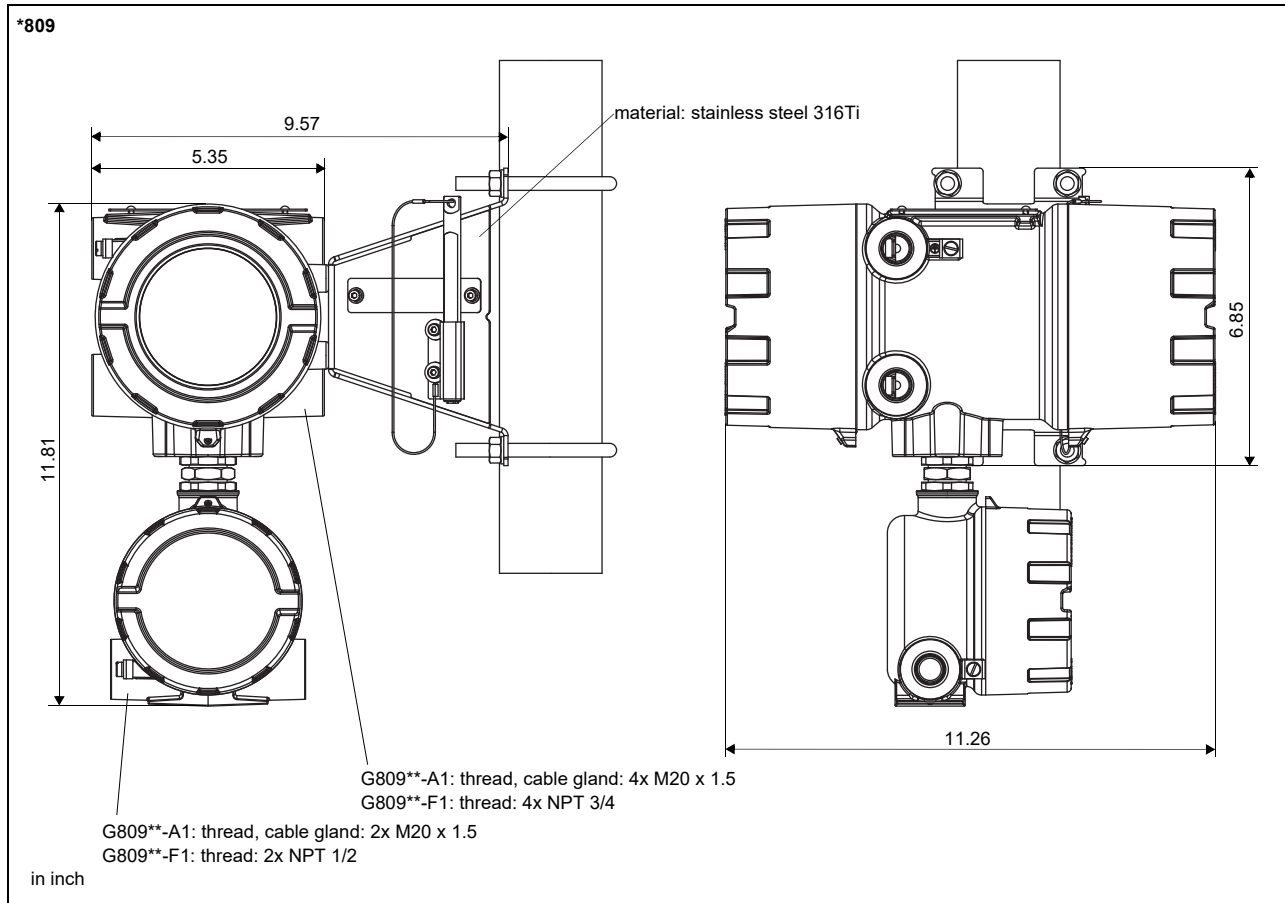
² connection of the RS232 interface outside the explosive atmosphere (housing cover is open)

	FLUXUS G809**-A1	FLUXUS G809**-A1A	FLUXUS G809**-F1
• FM			
marking	-	-	 Cl. I, II, III/Div. 1/ GP. A, B, C, D, E, F, G/ For Group A, conduit seal of connection compartment is required within 18 inches.  Cl. I, II, III/Div. 1/ GP. B, C, D, E, F, G T4A Ta = 60 °C
measuring functions			
physical quantities	operating volumetric flow rate, standard volumetric flow rate, mass flow rate, flow velocity		
totalizer	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		
communication interfaces			
service interfaces	<ul style="list-style-type: none"> • RS232² • USB (with adapter)² 		
process interfaces	max. 1 option: <ul style="list-style-type: none"> • RS485 (ASCII sender) • Modbus RTU • HART 	<ul style="list-style-type: none"> • HART 	max. 1 option: <ul style="list-style-type: none"> • RS485 (ASCII sender) • Modbus RTU • HART
accessories			
data transmission kit	<ul style="list-style-type: none"> • cable RS232 • adapter RS232 - USB 		
software	<ul style="list-style-type: none"> • FluxDiagReader: reading of measured values and parameters, graphical presentation • FluxDiag (optional): reading of measurement data, graphical presentation, report generation 		
data logger			
loggable values	all physical quantities, totalized physical quantities and diagnostic values		
capacity	> 100 000 measured values		
outputs			
	The outputs are galvanically isolated from the transmitter.		
number	max. 4	1	max. 4
• current output			
number	max. 2 (I1, I2)	1 (I1, intrinsic safety)	max. 2 (I1, I2)
range	mA 0/4 to 20	4 to 20	0/4 to 20
accuracy	0.1 % MV ±15 µA	0.04 % MV ±3 µA	0.1 % MV ±15 µA
active output	R _{ext} < 500 Ω	-	R _{ext} < 500 Ω
passive output	U _{ext} = 4 to 26.4 V, depending on R _{ext} (R _{ext} < 1 kΩ at 26.4 V)	U _{ext} = 7 to 30 V, depending on R _{ext} (R _{ext} < 1 kΩ at 30 V)	U _{ext} = 4 to 26.4 V, depending on R _{ext} (R _{ext} < 1 kΩ at 26.4 V)
current output in HART mode	I1	I1	I1
• range	mA 4 to 20	4 to 20	4 to 20
• active output	U _{int} = 24 V	-	U _{int} = 24 V
• passive output	U _{ext} = 7 to 30 V DC	U _{ext} = 7 to 30 V DC	U _{ext} = 7 to 30 V DC
• frequency output			
number	max. 1	-	max. 1
range	kHz 0 to 5	-	0 to 5
open collector	30 V/100 mA or 8.2 V DIN EN 60947-5-6 (NAMUR) or 24 V/4 mA (on request)	-	30 V/100 mA or 8.2 V DIN EN 60947-5-6 (NAMUR) or 24 V/4 mA (on request)
• binary output			
number	max. 2	-	max. 2
open collector	24 V/4 mA optional: • 30 V/100 mA or • 8.2 V DIN EN 60947-5-6 (NAMUR)	-	24 V/4 mA optional: • 30 V/100 mA or • 8.2 V DIN EN 60947-5-6 (NAMUR)
Reed relay	48 V/100 mA	-	48 V/100 mA
binary output as alarm output			
• functions	limit, change of flow direction or error	-	limit, change of flow direction or error
binary output as pulse output			
• functions	mainly for totalizing	-	mainly for totalizing
• pulse value	units 0.01 to 1000	-	0.01 to 1000
• pulse width	ms 1 to 1000	-	1 to 1000

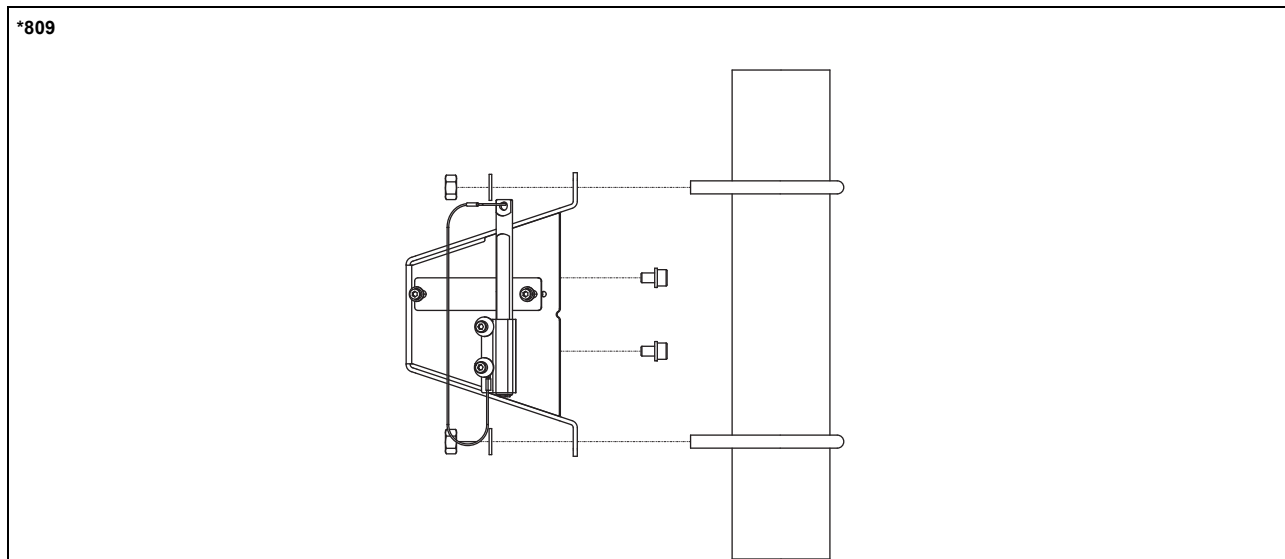
¹ with aperture calibration of the transducers

² connection of the RS232 interface outside the explosive atmosphere (housing cover is open)

Dimensions



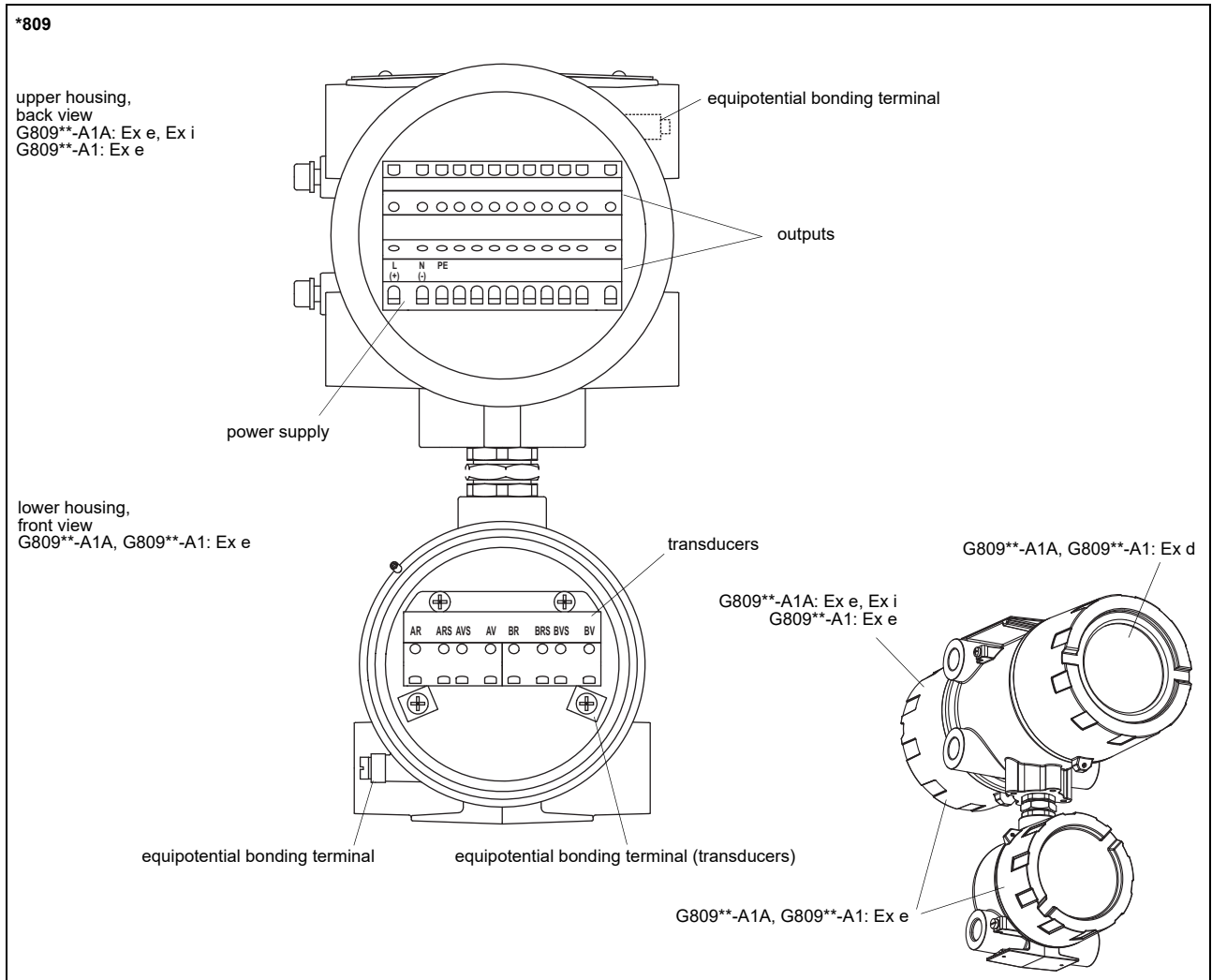
2" pipe mounting kit



Storage

- do not store outdoors
- store within the original package
- store in a dry and dust-free place
- protect against sunlight
- keep all openings closed
- storing temperature: -40...+140 °F

Terminal assignment



power supply ¹				
AC		DC		
terminal	connection	terminal	connection	
L	phase	L+	+	
N	neutral	N-	-	
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 or equipotential bonding terminal (transducers)	external shield	cable gland or equipotential bonding terminal (transducers)	external shield	↑ ↕
outputs (options) ¹				
terminal	connection			
1(-), 2(+)	current output I1	frequency output F1		
3(-), 4(+)	current output I2			
5(-), 6(+)	binary output B1 (open collector)			
7(-), 8(+)	binary output B2 (open collector)			
9(-), 10(+)	binary output B1 (Reed relay)	binary output B1 (open collector)		
A+, B-, S	communication interface			

¹ cable (by customer): e.g., flexible wires, with insulated wire ferrules, wire cross-section: AWG14 to 24

Transducers

Overview

Shear wave transducers

		technical type				
		G	K	M	P	Q
zone 1 normal temperature range		GDG1N81 GLG1N81	GDK1N81 GLK1N81	GDM2N81 GLM2N81	GDP2N81 GLP2N81	GDQ2N81 GLQ2N81
zone 1 IP68		GDG1L11	GDK1L11	GDM2L11	GDP2L11	
zone 1 extended temperature range		GDG1E83 GLG1E83	GDK1E83 GLK1E83	GDM2E85 GLM2E85	GDP2E85 GLP2E85	GDQ2E85 GLQ2E85
FM Class I Div. 1 normal temperature range		GDG1N62 GLG1N62	GDK1N62 GLK1N62	GDM1N62 GLM1N62	GDP1N62 GLP1N62	GDQ1N62 GLQ1N62
inner pipe diameter d						
min. extended	inch	7.1	2.4	1.2	0.59	0.28
min. recommended	inch	8.7	3.1	1.6	0.79	0.39
max. recommended	inch	35.4	11.8	5.9	2	0.87
max. extended	inch	43.3	14.2	7.1	2.4	1.2
pipe wall thickness						
min.	inch	0.43	0.2	0.1	0.05	0.02
fluid pressure						
min. extended	psi	metal pipe: 290				
min.	psi	metal pipe: 435, plastic pipe: 15				

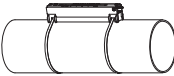



for further data see Technical specification TS_G8xx-transducersVx-xxx_Lus

Lamb wave transducers

		technical type						
		F	G	H	K	M	P	Q
zone 1 normal temperature range		GRF1N83 GTF1N83	GRG1N83 GTG1N83	GRH1N83 GTH1N83	GRK1N83 GTK1N83	GRM1N83 GTM1N83	GRP1N83 GTP1N83	GRQ1N83 GTQ1N83
zone 1 higher temperatures			GRG1S83 GTG1S83	GRH1S83 GTH1S83	GRK1S83 GTK1S83	GRM1S83 GTM1S83		
zone 1 IP68		GRF1L13	GRG1L13	GRH1L13	GRK1L13	GRM1L13	GRP1L13	
FM Class I Div. 1			GRG1N62 GTG1N62	GRH1N62 GTH1N62	GRK1N62 GTK1N62	GRM1N62 GTM1N62	GRP1N62 GTP1N62	GRQ1N62 GTQ1N62
fluid pressure								
min. extended	psi	metal pipe: 145	metal pipe: 145	metal pipe: 145	metal pipe: 145 (d > 4.7 inch) 44 (d < 4.7 inch)	metal pipe: 44 (d < 2.4 inch)	metal pipe: 44 (d < 1.4 inch)	metal pipe: 44 (d < 0.59 inch)
min.	psi	metal pipe: 218 plastic pipe: 15	metal pipe: 218 plastic pipe: 15	metal pipe: 218 plastic pipe: 15	metal pipe: 218 (d > 4.7 inch) 145 (d < 4.7 inch) plastic pipe: 15	metal pipe: 145 (d > 2.4 inch) 73 (d < 2.4 inch) plastic pipe: 15	metal pipe: 145 (d > 1.4 inch) 73 (d < 1.4 inch) plastic pipe: 15	metal pipe: 145 (d > 0.59 inch) 73 (d < 0.59 inch) plastic pipe: 15
inner pipe diameter d								
min. extended	inch	8.7	7.1	4.3	2.4	1.2	0.59	0.28
min. recommended	inch	10.6	8.7	5.5	3.1	1.6	0.79	0.39
max. recommended	inch	47.2	35.4	23.6	11.8	5.9	2	0.87
max. extended	inch	63	55.1	39.4	14.2	7.1	2.4	1.2
pipe wall thickness ****N**, ****L**								
min.	inch	0.59	0.43	0.31	0.2	0.1	0.05	0.02
max.	inch	1.3	0.94	0.63	0.39	0.2	0.12	0.05
max. extended	inch	1.4	-	-	-	-	-	-
pipe wall thickness ****S**								
min.	inch		0.42	0.28	0.17	0.08		
max.	inch		0.93	0.62	0.37	0.19		

for further data see Technical specification TS_G8xx-transducersVx-xxx_Lus

Transducer mounting fixture

PermaRail	PermaFiX
	
PermaRail with bolt mounting plates	PermaFiX with bolt mounting plates
 outer pipe diameter: max. 1.9 inch	

for further data see Technical specification TS_G8xx-transducersVx-xxx_Lus

Coupling materials for transducers

	normal temperature range		extended temperature range		
	< 212 °F	< 338 °F	< 302 °F	< 392 °F	392 to 464 °F
< 24 h	coupling compound type N or coupling pad type VT	coupling compound type E or coupling pad type VT	coupling compound type E or coupling pad type VT	coupling compound type E or H or coupling pad type VT	coupling pad type TF
long time measurement	coupling pad type VT	coupling pad type VT	coupling pad type VT	coupling pad type VT	

for further data see Technical specification TS_G8xx-transducersVx-xxx_Lus

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_Lus

Connection systems

connection system T1		
connection with extension cable	direct connection	transducers technical type
<p>JB01</p>		<p>****8*</p>
<p>JB01</p>		<p>****L1*</p>
<p>terminal board for junction box (junction box by customer)</p>		<p>****62</p>

for further data see Technical specification TS_G8xx-transducersVx-xXX_Lus