



## Flow transmitter FLUXUS G704CA

### Technical data

FLUXUS	G704CA-NN	G704CA-A2	G704CA-F2
design	flow measurement of compressed air and industrial gases	flow measurement of compressed air and industrial gases zone 2 (ATEX/IECEX)	flow measurement of compressed air and industrial gases FM class I Div. 2
			
<b>measurement</b>			
measurement principle	transit time difference correlation principle		
flow velocity	0.03 to 115 ft/s, depending on pipe diameter		
repeatability	0.15 % of reading ±0.03 ft/s		
fluid	compressed air, oxygen, nitrogen, argon		
temperature compensation	corresponding to the recommendations in ANSI/ASME MFC-5.1-2011		
<b>accuracy</b>			
volumetric flow rate	± 1 to 3 % of reading ±0.03 ft/s depending on application ± 0.5 % of reading ±0.03 ft/s with field calibration		
<b>flow transmitter</b>			
power supply	100 to 230 V/50 to 60 Hz or 20 to 32 V DC or 11 to 16 V DC		
power consumption	< 15 W		
number of flow measuring channels	1, optional: 2		
damping	0 to 100 s, adjustable		
measuring cycle (1 channel)	100 to 1000 Hz		
response time	1 s, option: 70 ms		
housing material	aluminum, powder coated		
degree of protection	NEMA 4		
dimensions	see dimensional drawing		
weight	6.8 lb		
fixation	wall mounting, optional: 2" pipe mounting		
ambient temperature	-40 to +140 °F, (< -4 °F without operation of the display)		-4 to +140 °F
display	2 x 16 characters, dot matrix, backlight		
menu language	English, German, French, Dutch, Spanish		
<b>explosion protection</b>			
<b>A T E X  / I E C E X</b>	zone marking	-	2
	certification ATEX	-	CE 0637  II3G II2D
	certification IECEX	-	Ex nA nC ic IIC T4 Gc Ex tb IIIC T 120 °C Db T <sub>a</sub> -40 to +60 °C IBExU11ATEX1015 IECEX IBE 11.0008
	type of protection	-	gas: non sparking dust: protection by enclosure
<b>F M</b>	intrinsic safety parameters	-	U <sub>m</sub> = 250 V (power supply 100 to 230 V AC) U <sub>m</sub> = 36 V (power supply 20 to 32 V DC)
	marking	-	G70[1 or 2]Z2**[1 or 2]- **NNANNND*9W:  NI/CI. I,II,III/Div. 2/ GP. A,B,C,D,E,F,G/ T5 Ta = 60 °C  G70[1 or 2]Z2**9- **NNANNND*9W:  NI/CI. I,II,III/Div. 2/ GP. A,B,C,D,E,F,G/ T4A Ta = 55 °C

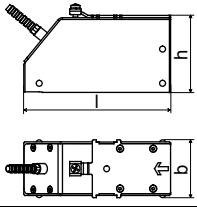
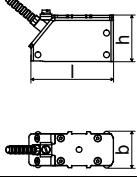
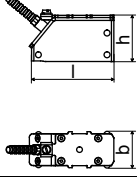
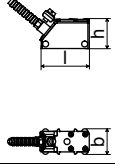




FLUXUS	G704CA-NN	G704CA-A2	G704CA-F2
<b>measuring functions</b>			
physical quantities	operating volumetric flow rate, standard volumetric flow rate, mass flow rate, flow velocity		
totalizer	volume, mass		
diagnostic functions	sound speed, signal amplitude, SNR, SCNR, standard deviation of amplitudes and transit times		
<b>data logger</b>			
loggable values	all physical quantities, totalized values and diagnostic values		
capacity	> 100 000 measured values		
<b>communication</b>			
interface	- process integration (optional): RS485 (sender) or Modbus RTU or BACnet MS/TP or M-Bus (nonEx) - diagnosis: RS232 <sup>1</sup>		
<b>SD card, removable (optional)</b>			
loggable values	all physical quantities and totalized values		-
capacity	min. 2 GB		-
<b>serial data kit (optional)</b>			
software (all Windows™ versions)	- FluxData: download of measurement data, graphical presentation, conversion to other formats (e.g., for Excel™) - FluxDiag (optional): online diagnostics and report generation - FluxSubstanceLoader: upload of fluid data sets		
cable	RS232	RS232 <sup>1</sup>	RS232 <sup>1</sup>
adapter	RS232 - USB	RS232 - USB <sup>1</sup>	RS232 - USB <sup>1</sup>
<b>outputs</b>			
The outputs are galvanically isolated from the transmitter.			
<b>switchable current output</b>			
number	All switchable current outputs are switched to active or passive mode at the same time.		-
range	1		-
accuracy	4 to 20 mA (3.2 to 22 mA)		-
active output	0.04 % of reading ±3 µA		-
passive output	$R_{ext} < 350 \Omega$		-
	$U_{ext} = 8 \text{ to } 30 \text{ V}$ , depending on $R_{ext}$ , $R_{ext} < 1 \text{ k}\Omega$		-
<b>current output</b>			
- range	-		0/4 to 20 mA
- accuracy	-		0.1 % of reading ±15 µA
- active output	-		$R_{ext} < 500 \Omega$
<b>binary output</b>			
number	3		
optorelay	26 V/100 mA		
binary output as alarm output			
- functions	limit, change of flow direction or error		
binary output as pulse output			
- pulse value	0.01 to 1000 units		
- pulse width	1 to 1000 ms		
<b>inputs</b>			
The inputs are galvanically isolated from the transmitter.			
<b>temperature input</b>			
number	1		
type	Pt100/Pt1000		
connection	4-wire		
range	-238 to +1040 °F		
resolution	0.01 K		
accuracy	±0.01 % of reading ±0.03 K		
<b>current input</b>			
number	1		
accuracy	0.1 % of reading ±10 µA		
active input	$U_{int} = 24 \text{ V}$ , $R_{int} = 50 \Omega$ , $P_{int} < 0.5 \text{ W}$ , not short-circuit proof		
- range	0 to 20 mA		
passive input	$R_{int} = 50 \Omega$ , $P_{int} < 0.3 \text{ W}$		
- range	-20 to +20 mA		

<sup>1</sup> connection of the interface RS232 outside of explosive atmosphere (housing cover open)

## Transducers

### Technical data

#### Lamb wave transducers

technical type		GRK1N52	GRM1N52	GRP1N52	GRQ1N52
order code		<b>GLK-NF2TS</b> <b>GLK-NNNTS</b>	<b>GLM-NF2TS</b> <b>GLM-NNNTS</b>	<b>GLP-NF2TS</b> <b>GLP-NNNTS</b>	<b>GLQ-NF2TS</b> <b>GLQ-NNNTS</b>
transducer frequency	MHz	0.5	1	2	4
<b>fluid pressure</b>					
min.	psi	73	73	73	73
<b>inner pipe diameter d<sup>1</sup></b>					
min. extended	in	2.4	1.2	0.59	0.28
min. recommended	in	3.1	1.6	0.79	0.39
max. recommended	in	9.8	3.5	2	0.87
max. extended	in	9.8	5.9	2.8	1.4
<b>pipe wall thickness</b>					
min.	in	0.16	0.08	0.04	0.02
max.	in	0.35	0.2	0.12	0.04
<b>material</b>					
housing		PPSU with stainless steel cap 304	PPSU with stainless steel cap 304	PPSU with stainless steel cap 304	PPSU with stainless steel cap 304
contact surface		PPSU	PPSU	PPSU	PPSU
degree of protection		NEMA 6	NEMA 4	NEMA 4	NEMA 4
<b>transducer cable</b>					
type		1699	1699	1699	1699
length	ft	16	13	13	9
<b>dimensions</b>					
length l	in	5.06	2.91	2.91	1.65
width b	in	2.01	1.26	1.26	0.87
height h	in	2.66	1.59	1.59	1
dimensional drawing					
<b>ambient temperature</b>					
min.	°F	-40	-40	-40	-40
max.	°F	+338	+338	+338	+338
temperature compensation		x	x	x	x
order code		GLK-NF2TS	GLM-NF2TS	GLP-NF2TS	GLQ-NF2TS
<b>explosion protection temperature</b>					
min.	°F	-40	-40	-40	-40
max.	°F	+329	+329	+329	+329
marking		 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860	 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860	 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860	 NI/Cl. I,II,III/Div. 2 / GP A,B,C,D,E,F,G/ Temp. Codes dwg 3860
type of protection		non incendive	non incendive	non incendive	non incendive

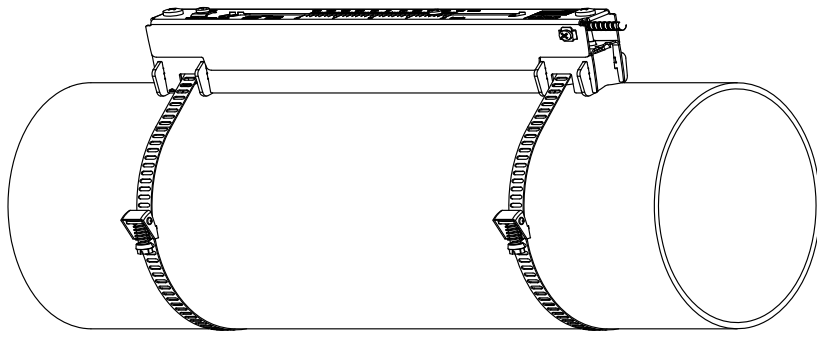
<sup>1</sup> Lamb wave transducer:

pipe diameter min. recommended/max. recommended: in reflect arrangement and for a flow velocity of 49 ft/s

pipe diameter max. extended: in diagonal arrangement and for a flow velocity of 82 ft/s

### Transducer mounting fixture

#### PermaRail (VLK, VLM, VLQ)



material: stainless steel 304, 301, 410

inner length:  
**VLK:** 13.7 in,  
**VLM:** 9.2 in  
**VLQ:** 6.9 in

dimensions:  
**VLK:** 16.65 x 3.54 x 3.66 in,  
**VLM:** 12.17 x 2.24 x 2.48 in  
**VLQ:** 9.72 x 1.69 x 1.85 in

### Coupling materials for transducers

type	order code	ambient temperature °F	material	remark
coupling compound type N	990739-1	-22 to +266	mineral grease paste	
coupling pad type VT	990739-0	14 to +392	fluoroelastomer	for transducers with transducer frequency K
	990739-14			for transducers with transducer frequency M, P, Q

### Damping mats

#### Technical data

type		E30R4	E30R3
width	in	8.9	2
thickness	in	0.03	
length (per roll)	ft	32	
weight	lb/ft <sup>2</sup>	2.2	
ambient temperature	°F	-22 to +1760	
properties		self-adhesive	

### Dimensioning

transducer		damping mat								
transducer mounting fixture	order code	type	number of layers	transducer damping mat			transducer damping mat + 2x pipe damping mat			
				max. installation length [in]	number of rolls <sup>1</sup>		max. installation length [in]	number of rolls <sup>1</sup>		
					standard <sup>2</sup>	extended <sup>2</sup>		standard	extended	
<b>PermaRail</b>										
VLK	GLK	E30R4	1	35	1	1	72	1	2	
VLM	GLM	E30R3	1	26	1	1	53.5	1	2	
	GLP		1		1	1		1		
VLQ	GLQ	E30R3	1	21.3	1	1	44.1	1	1	

<sup>1</sup> calculation on the base of:

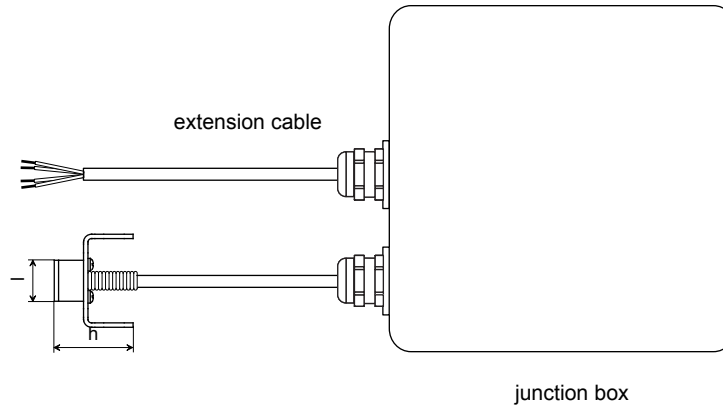
- max. installation length (installation of one transducer mounting fixture per transducer in reflect arrangement) and
- max. recommended pipe diameter (standard) or max. extended pipe diameter (extended)  
 (for inner pipe diameter max. recommended and max. extended see Technical Data of the Transducers from page Seite 3)

<sup>2</sup> calculation for the number of rolls when both transducers are mounted in one transducer mounting fixture (reflect arrangement) or in diagonal arrangement/direct mode: number of rolls/2 and round up to the nearest integer

## Clamp-on temperature probe (optional)

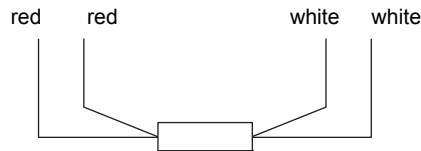
### Technical data

technical type		<b>PT13F</b>
order code		<b>770415-2</b>
type		Pt1000
connection		4-wire
measuring range	°F	-58 to +482
accuracy T		$\pm(0.27 \text{ }^\circ\text{F} + 2 \cdot 10^{-3} \cdot ( T \text{ [}^\circ\text{F]}  - 32 \text{ }^\circ\text{F}))$ class A
housing		PEEK, stainless steel 304, copper
degree of protection		NEMA 4
weight	lb	0.7
fixation		clamp-on
<b>accessories</b>		
thermal conductivity paste 392 °F		x
thermal conductivity foil 482 °F		x
plastic protection plate, insulation foam		x
<b>dimensions</b>		
length l	in	0.55
width b	in	1.18
height h	in	1.06



### Connection

#### Temperature probe



**Cable**

		<b>cable of temperature probe</b>	<b>extension cable</b>
type		4 x 0.25 mm <sup>2</sup> black	LIYCY 8 x 0.14 mm <sup>2</sup> gray
standard length	ft	9	16/32/82
max. length	ft	-	656
cable jacket		PTFE	PVC

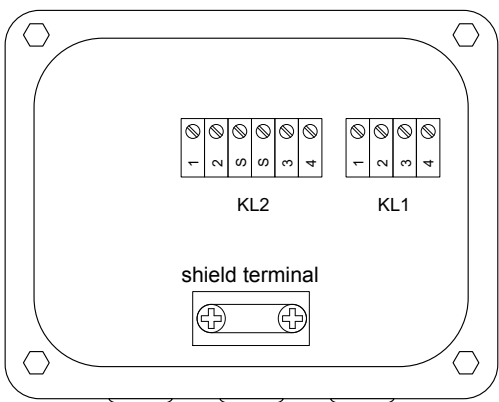
<b>cable of temperature probe</b>	<b>extension cable</b>
white	blue
red	gray
red	red
white	white

**Junction box**

technical type		<b>JBT3</b>
dimensions		see dimensional drawing
fixation		wall mounting optional: 2" pipe mounting
<b>material</b>		
housing		stainless steel 304
gasket		silicone
degree of protection		NEMA 6
cable gland		max. 2x 1/2 NPT
<b>ambient temperature</b>		
min.	°F	-40
max.	°F	+176

**Terminal assignment**

**JBT3**



**temperature probe**

terminal strip KL1

terminal	connection
1	red
2	red
3	white
4	white

**extension cable**

terminal strip KL2

terminal	connection
1	red
2	gray
3	white
4	blue



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