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
			
measurement			
measurement principle	transit time difference correlation principle		
flow velocity	0.01...35 m/s, depending on pipe diameter		
repeatability	0.15 % of reading ±0.01 m/s		
fluid	compressed air, oxygen, nitrogen, argon		
temperature compensation	corresponding to the recommendations in ANSI/ASME MFC-5.1-2011		
accuracy			
volumetric flow rate	± 1...3 % of reading ±0.01 m/s depending on application ± 0.5 % of reading ±0.01 m/s with field calibration		
flow transmitter			
power supply	100...230 V/50...60 Hz or 20...32 V DC or 11...16 V DC		
power consumption	< 15 W		
number of flow measuring channels	1, optional: 2		
damping	0...100 s, adjustable		
measuring cycle (1 channel)	100...1000 Hz		
response time	1 s, option: 70 ms		
housing material	aluminum, powder coated		
degree of protection according to IEC/EN 60529	IP65		
dimensions	see dimensional drawing		
weight	3.1 kg		
fixation	wall mounting, optional: 2" pipe mounting		
ambient temperature	-40...+60 °C, (< -20 °C without operation of the display)		-20...+60 °C
display	2 x 16 characters, dot matrix, backlight		
menu language	English, German, French, Dutch, Spanish		
explosion protection			
ATEX / IECEx zone	-	2	-
ATEX / IECEx marking	-	CE 0637 Ex II3G II2D Ex nA nC ic IIC T4 Gc Ex tb IIIC T 120 °C Db T_a -40...+60 °C	-
ATEX / IECEx certification ATEX	-	IBExU11ATEX1015	-
ATEX / IECEx certification IECEx	-	IECEx IBE 11.0008	-
ATEX / IECEx type of protection	-	gas: non sparking dust: protection by enclosure	-
ATEX / IECEx intrinsic safety parameters	-	U_m = 250 V (power supply 100...230 V AC) U_m = 36 V (power supply 20...32 V DC)	-
FM marking	-	-	G70[1 or 2]Z2**[1 or 2]-**NNANNNDDD*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-**NNANNNDDD*9W: NI/CI. I,II,III/Div. 2/ GP. A,B,C,D,E,F,G/ T4A Ta = 55 °C

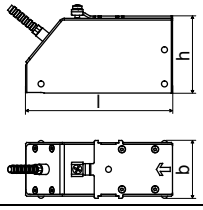
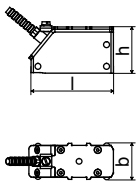
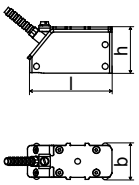
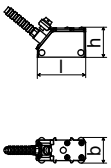
FLUXUS	**G704CA-NN**	**G704CA-A2**	**G704CA-F2**
measuring functions			
physical quantities	operating volumetric flow rate, standard volumetric flow rate, mass flow rate, flow velocity		
totalizer	volume, mass		
diagnostic functions	sound speed, signal amplitude, SNR, SCNR, standard deviation of amplitudes and transit times		
data logger			
loggable values	all physical quantities, totalized values and diagnostic values		
capacity	> 100 000 measured values		
communication			
interface	- process integration (optional): RS485 (sender) or Modbus RTU or BACnet MS/TP or M-Bus (nonEx) - diagnosis: RS232[1]		
SD card, removable (optional)			
loggable values	all physical quantities and totalized values		-
capacity	min. 2 GB		-
serial data kit (optional)			
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[1]	RS232[1]
adapter	RS232 - USB	RS232 - USB[1]	RS232 - USB[1]
outputs			
	The outputs are galvanically isolated from the transmitter.		
	switchable current output		
	All switchable current outputs are switched to active or passive mode at the same time.		-
number	1		-
range	4...20 mA (3.2...22 mA)		-
accuracy	0.04 % of reading ±3 µA		-
active output	R_{ext} < 350 Ω		-
passive output	U_{ext} = 8...30 V, depending on R_{ext}, R_{ext} < 1 kΩ		-
	current output		
- range	-		0/4...20 mA
- accuracy	-		0.1 % of reading ±15 µA
- active output	-		R_{ext} < 500 Ω
	binary output		
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...1000 units		
- pulse width	1...1000 ms		
inputs			
	The inputs are galvanically isolated from the transmitter.		
	temperature input		
number	1		
type	Pt100/Pt1000		
connection	4-wire		
range	-150...+560 °C		
resolution	0.01 K		
accuracy	±0.01 % of reading ±0.03 K		
	current input		
number	1		
accuracy	0.1 % of reading ±10 µA		
active input	U_{int} = 24 V, R_{int} = 50 Ω, P_{int} < 0.5 W, not short-circuit proof		
- range	0...20 mA		
passive input	R_{int} = 50 Ω, P_{int} < 0.3 W		
- range	-20...+20 mA		

[1] connection of the interface RS232 outside of explosive atmosphere (housing cover open)

Transducers

Technical data

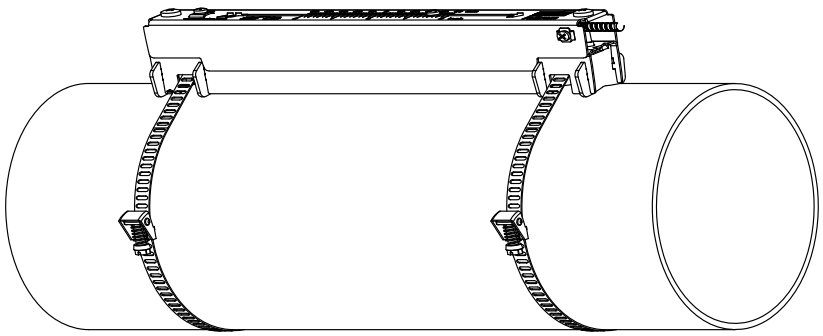
Lamb wave transducers

technical type		GRK1N52	GRM1N52	GRP1N52	GRQ1N52
order code		**GLK-NA2TS GLK-NF2TS GLK-NNNTS**	**GLM-NA2TS GLM-NF2TS GLM-NNNTS**	**GLP-NA2TS GLP-NF2TS GLP-NNNTS**	**GLQ-NA2TS GLQ-NF2TS GLQ-NNNTS**
transducer frequency	MHz	0.5	1	2	4
fluid pressure					
min.	bar	5	5	5	5
inner pipe diameter d[1]					
min. extended	mm	60	30	15	7
min. recommended	mm	80	40	20	10
max. recommended	mm	250	90	50	22
max. extended	mm	250	150	70	35
pipe wall thickness					
min.	mm	4	2	1	0.5
max.	mm	9	5	3	1
material					
housing		PPSU with stainless steel cap 304 (1.4301)	PPSU with stainless steel cap 304 (1.4301)	PPSU with stainless steel cap 304 (1.4301)	PPSU with stainless steel cap 304 (1.4301)
contact surface		PPSU	PPSU	PPSU	PPSU
degree of protection according to IEC/ EN 60529		IP67	IP65	IP65	IP65
transducer cable					
type		1699	1699	1699	1699
length	m	5	4	4	3
dimensions					
length l	mm	128.5	74	74	42
width b	mm	51	32	32	22
height h	mm	67.5	40.5	40.5	25.5
dimensional drawing					
ambient temperature					
min.	°C	-40	-40	-40	-40
max.	°C	+170	+170	+170	+170
temperature compen-sation		x	x	x	x
ATEX/IECEx order code		GLK-NA2TS	GLM-NA2TS	GLP-NA2TS	GLQ-NA2TS
category zone		gas: 3G dust: 2D 2 21	gas: 3G dust: 2D 2 21	gas: 3G dust: 2D 2 21	gas: 3G dust: 2D 2 21
explosion protection temperature (pipe surface)					
min.	°C	-55	-55	-55	-55
max.	°C	gas: +150, dust: +140	gas: +150, dust: +140	gas: +150, dust: +140	gas: +150, dust: +140
marking		CE 0637 Ex II3G II2D Ex nA IIC T6...T2 Gc Ex tb IIIC TX Db	CE 0637 Ex II3G II2D Ex nA IIC T6...T2 Gc Ex tb IIIC TX Db	CE 0637 Ex II3G II2D Ex nA IIC T6...T2 Gc Ex tb IIIC TX Db	CE 0637 Ex II3G II2D Ex nA IIC T6...T2 Gc Ex tb IIIC TX Db
certification ATEX		IBExU10ATEX1163 X	IBExU10ATEX1163 X	IBExU10ATEX1163 X	IBExU10ATEX1163 X
certification IECEx		IECEx IBE 12.0005X	IECEx IBE 12.0005X	IECEx IBE 12.0005X	IECEx IBE 12.0005X
type of protection		gas: non sparking dust: protection by enclosure	gas: non sparking dust: protection by enclosure	gas: non sparking dust: protection by enclosure	gas: non sparking dust: protection by enclosure
transducer mounting fixture necessary		x	x	x	x
FM order code		GLK-NF2TS	GLM-NF2TS	GLP-NF2TS	GLQ-NF2TS
explosion protection temperature					
min.	°C	-40	-40	-40	-40
max.	°C	+165	+165	+165	+165
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

[1] Lamb wave transducer:
pipe diameter min. recommended/max. recommended: in reflection arrangement and for a flow velocity of 15 m/s
pipe diameter max. extended: in diagonal arrangement and for a flow velocity of 25 m/s

Transducer mounting fixture

Variofix L (VLK, VLM, VLQ)



material: stainless steel 304 (1.4301), 301 (1.4310), 410 (1.4006)

inner length:
VLK: 348 mm,
VLM: 234 mm
VLQ: 176 mm

dimensions:
VLK: 423 x 90 x 93 mm,
VLM: 309 x 57 x 63 mm
VLQ: 247 x 43 x 47 mm

Coupling materials for transducers

type	order code	ambient temperature °C	material	remark
coupling compound type N	990739-1	-30...+130	mineral grease paste	
coupling foil type VT	990739-0	-10...+200	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	mm	225	50
thickness	mm	0.7	
length (per roll)	m	10	
weight	kg/m²	1.015	
ambient temperature	°C	-30...+80	
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 [mm]	number of rolls[1] standard[2]	extended[2]	max. installation length [mm]	number of rolls[1] standard	extended
VarioFix L									
VLK	GLK	E30R4	1	890	1	1	1830	1	2
VLM	GLM	E30R3	1	660	1	1	1360	1	2
	GLP		1		1	1		1	1
VLQ	GLQ	E30R3	1	540	1	1	1120	1	1

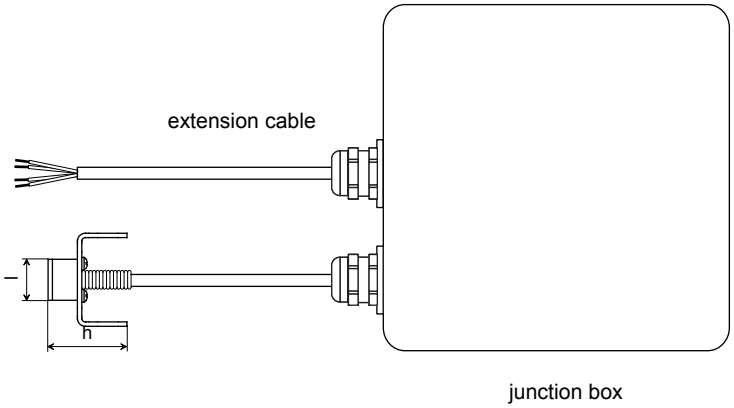
[1] calculation on the base of:
- max. installation length (installation of one transducer mounting fixture per transducer in reflection arrangement) and
- max. recommended pipe diameter (standard) or max. extended pipe diameter (extended)
(for inner pipe diameter max. recommended and max. extended see Technical Data of the Transducers from page Seite 3)

[2] calculation for the number of rolls when both transducers are mounted in one transducer mounting fixture (reflection arrangement) or in diagonal arrangement: number of rolls/2 and round up to the nearest integer

Clamp-on temperature probe (optional)

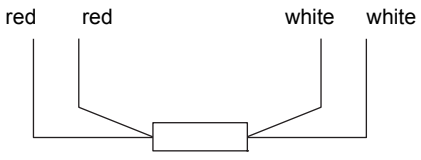
Technical data

technical type		**PT12F**
order code		**770415-2**
type		Pt100
connection		4-wire
measuring range	°C	-50...+250
accuracy T		±(0.15 °C + 2 · 10^{-3} · |T [°C]|) class A
housing		PEEK, stainless steel 304 (1.4301), copper
degree of protection according to IEC/ EN 60529		IP66
weight	kg	0.32
fixation		clamp-on
accessories		
thermal conductivity paste 200 °C		x
thermal conductivity foil 250 °C		x
plastic protection plate, insulation foam		x
dimensions		
length l	mm	14
width b	mm	30
height h	mm	27



Connection

Temperature probe



Cable

		cable of temperature probe	extension cable
type		4 x 0.25 mm² black	LIYCY 8 x 0.14 mm² grey
standard length	m	3	5/10/25
max. length	m	-	200
cable jacket		PTFE	PVC

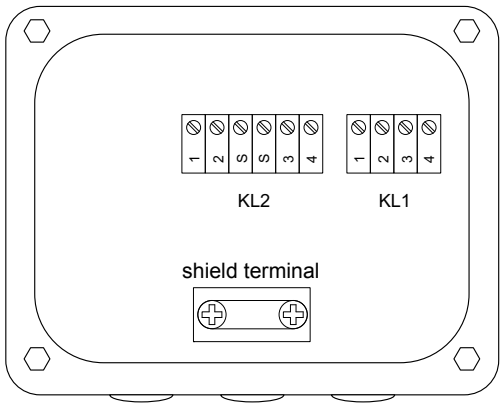
cable of temperature probe	extension cable
white	blue
red	grey
red	red
white	white

Junction box

technical type		**JBT3**
dimensions		see dimensional drawing
fixation		wall mounting optional: 2" pipe mounting
material		
housing gasket		stainless steel 304 (1.4301) silicone
degree of protection according to IEC/ EN 60529		IP67
cable gland		max. 2x M12
ambient temperature		
min. max.	°C °C	-40 +80

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	grey
3	white
4	blue

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