Stationary Ultrasonic Flow Measurement of Liquids

Features

Transducers

- non-invasive (no contact with the medium, no need for expensive materials)
- wearfree
- no pressure drop (no operational costs)
- low installation costs
- explosion proof transducers (FM or ATEX) available
- not sensitive to dust or humidity
- advantageous price for large pipe diameters and high pressure stages

Flowmeter

- stationary installation:
  - FLUXUS ADM 7407: for wall mounting
  - FLUXUS ADM 7907: for 19 " rack mounting
- simple operation due to clearly structured user dialog

Measurement

- stable and reliable measuring results even under difficult conditions
- precise bi-directional flow measurement with high measurement dynamics
- long-term stable measurement results
- high measurement rate, fast response time

FLUXUS ADM 7407

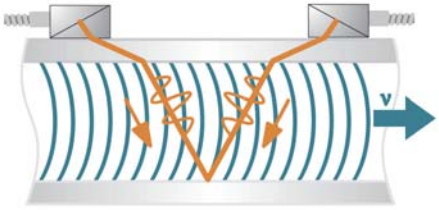
FLUXUS ADM 7907

Measuring Principle

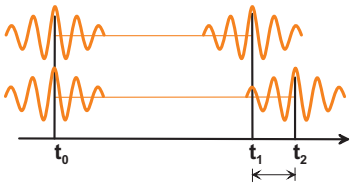
For the flow measurement of the medium, ultrasonic signals are used, employing the transit time method. Ultrasonic signals are emitted by a transducer installed on one side of a pipe, reflected on the opposite side and received by a second transducer. These signals are emitted alternatively in flow direction and against it.

As the medium in which the signals propagate is flowing, the transit time of the ultrasonic signals in flow direction is shorter than against the flow direction.

The transit time difference Δt is measured and allows to determine the average flow velocity on the propagation path of the ultrasonic signals. A flow profile correction is then performed in order to obtain the area average of the flow velocity, which is proportional to the volume flow.
The received ultrasonic signals will be checked for their usefulness for the measurement and the plausibility of the measured values will be evaluated. The complete measuring cycle is controlled by the integrated microprocessors. Disturbance signals will be eliminated.



Path of the ultrasonic signal



Transit time difference Δt

Calculation of the Flow Velocity

$v = k_\alpha \cdot \Delta t/(2 \cdot t_t)$

with:

v - flow velocity
k_α - flowmeter constant
Δt - transit time difference
t_t - transit time of the medium

Number of Sound Paths

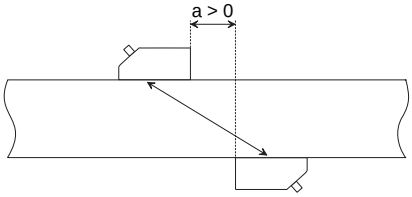
The number of sound paths is the number of transits of the ultrasonic signals through the medium in the pipe.

reflection mode: number of sound paths = even, the transducers are mounted on the same side of the pipe, correct positioning of the transducers easier

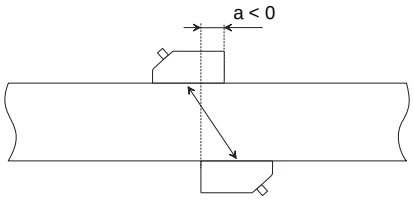
diagonal mode: number of sound paths = odd, the transducers are mounted on opposite sides of the pipe

The mode to be used depends on the application. If the number of sound paths is increased, the accuracy of the measurement will be better, but the signal attenuation is increased.

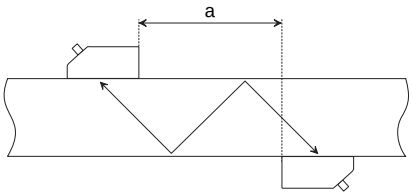
In case of a high signal attenuation by medium, pipe and coatings, diagonal mode with 1 sound path will be used.



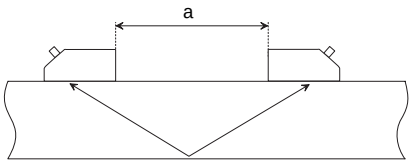
Diagonal mode, 1 sound path



Diagonal mode, 1 sound path, negative transducer distance



Diagonal mode, 3 sound paths



Reflex mode, 2 sound paths

a - transducer distance

Flowmeter

Technical Data

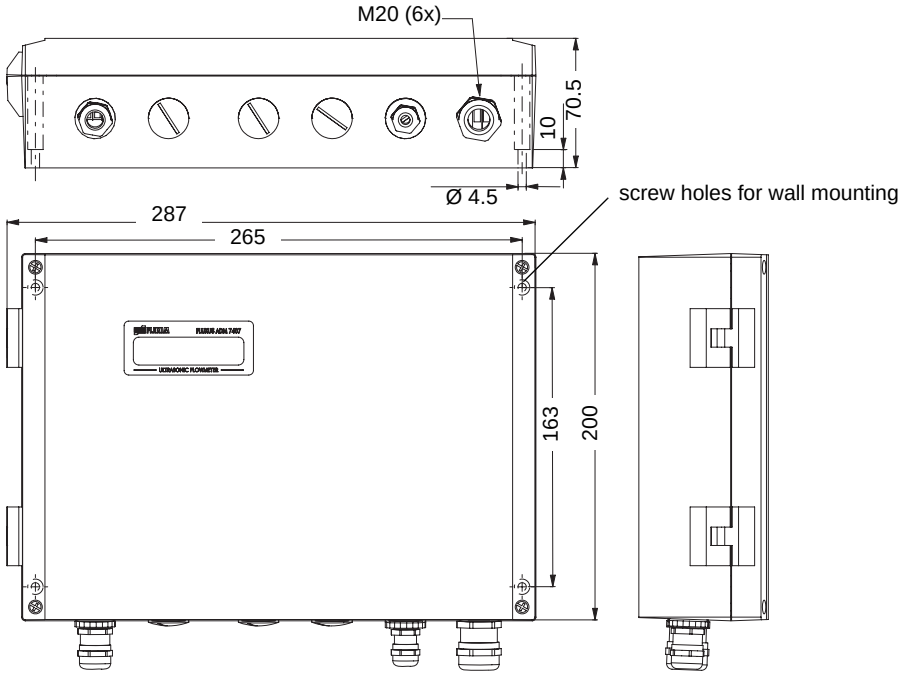
FLUXUS	ADM 7407	ADM 7407 A2	ADM 7907
design	standard field device	field device for ATEX zone 2	19 " module
			
measurement			
measuring principle	transit time difference correlation principle		
flow velocity	0.01...25 m/s		
repeatability	0.15 % of reading ±0.01 m/s		
accuracy [1]			
with standard calibration with extended calibration (option) with field calibration [2]	±1.6 % of reading ±0.01 m/s ±1.2 % of reading ±0.01 m/s ±0.5 % of reading ±0.01 m/s		
medium	all acoustically conductive liquids with < 10 % gaseous or solid content in volume		
flowmeter			
power supply	100...230 V/50...60 Hz or 20...32 V DC		
power consumption	< 15 W		
flow channels	1, option: 2		
signal damping	0...100 s, adjustable		
measuring cycle (1 channel)	100...1000 Hz		
response time	1 s (1 channel), option: 70 ms		
material	aluminum, powder coated		aluminum
degree of protection according to EN 60529	IP 65		IP 20
dimensions	see dimensional drawing		42TE x 3HE (without back panel) see dimensional drawing
weight	2.8 kg		1.7 kg
installation	wall mounting, option: 2 " pipe mounting		19 " rack mounting
operating temperature	-10...+60 °C		
display	2 x 16 characters, dot matrix, backlit		
menu language	English, German, French, Dutch, Spanish		
explosion protection			
ATEX zone marking	- -	2 CE Ex II 3G Ex nA II T4 T_a -20...+60 °C Ex II 3D Ex tD A22 IP66 T100 °C	- -
measuring functions			
physical quantities	volume flow, mass flow, flow velocity, heat flow (if temperature inputs are installed)		
totalizers	volume, mass, option: heat		
calculation functions	average, difference, sum		
data logger			
loggable values	all physical quantities and totalized values		
capacity	> 100 000 measured values		

1 under reference conditions and with v > 0.15 m/s
2 reference uncertainty < 0.2 %

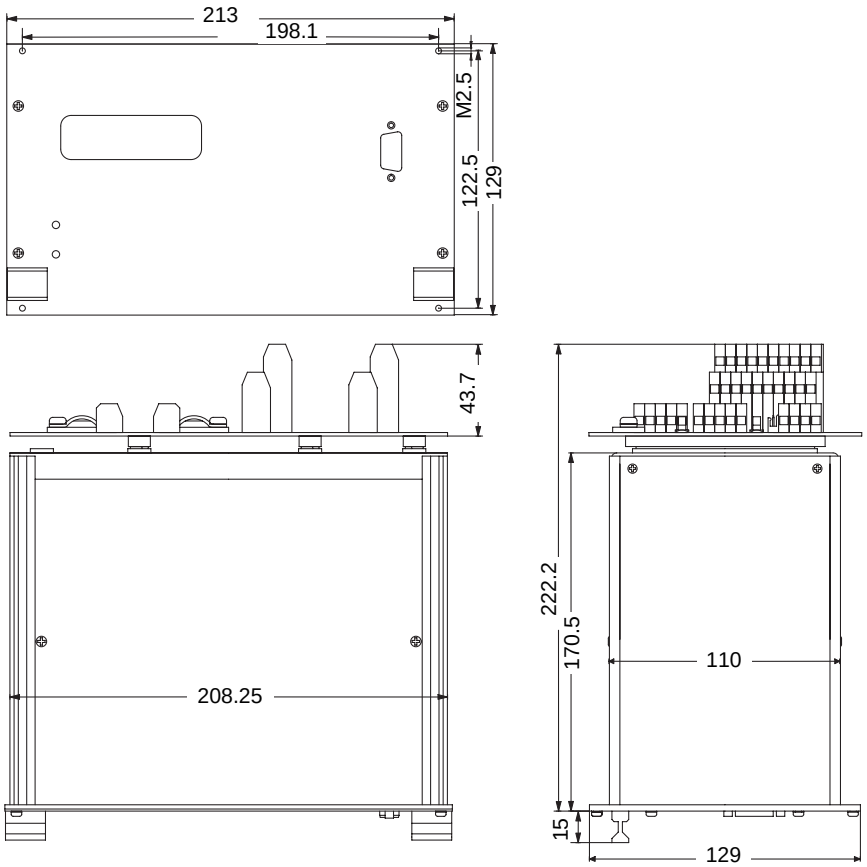
FLUXUS	ADM 7407	ADM 7407 A2	ADM 7907
communication			
interface	- process connection: option: RS485 (Modbus, emitter) - diagnosis: RS232		
serial data kit (option)			
software (all Windows™ versions)	- FluxData: download of measured data, graphical presentation, conversion to other formats - FluxKoeff: creating medium data sets		
cable	RS232		
adapter	RS232 to USB		
outputs (option)			
	The outputs are galvanically isolated from the main device.		
number	on request		
	current output		
range	0/4...20 mA		
accuracy	0.1 % of reading ±15 µA		
active output	R_{ext} < 500 Ω		
passive output	U_{ext} < 24 V, R_{ext} < 1 kΩ		
	voltage output		
range	0...1 V or 0...10 V		
accuracy	0...1 V: 0.1 % of reading ±1 mV 0...10 V: 0.1 % of reading ±10 mV		
internal resistance	R_i = 500 Ω		
	frequency output		
range	0...1 kHz or 0...10 kHz		
open collector	24 V/4 mA		
	binary output		
Reed relay	48 V/0.25 A		48 V/0.25 A
open collector (OC)	24 V/4 mA		24 V/4 mA
optorelay	32 V/100 mA		-
binary output as limit detector			
- function as state output	limit, sign change or error		limit, sign change or error
binary output (OC) as pulse output			
- value	0.01...1000 units		0.01...1000 units
- width	1...1000 ms		80...1000 ms
inputs (option)			
	The inputs are galvanically isolated from the main device.		
number	max. 4, on request		
	temperature input		
designation	Pt100/Pt1000		Pt100
design	4-wire		4-wire
range	-150...+560 °C		-50...+400 °C
resolution	0.01 K		0.1 K
accuracy	±0.01 % of reading ±0.03 K		±0.1 % of reading ±0.2 K
	current input		
accuracy	0.1 % of reading ±10 µA		
range	active : 0...20 mA passive : -20...+20 mA		
active input	U_i = 24 V, R_i = 50 Ω, P_i < 0.5 W, not short circuit proof		
passive input	R_i = 50 Ω, P_i < 0.3 W		
	voltage input		
range	0...1 V		0...1 V or 0...10 V
accuracy	0.1 % of reading ±1 mV		0...1 V: 0.1 % of reading ±1 mV 0...10 V: 0.1 % of reading ±10 mV
internal resistance	R_i = 1 MΩ		R_i = 1 MΩ

Dimensions and Mounting Dimensions (in mm)

FLUXUS ADM 7407

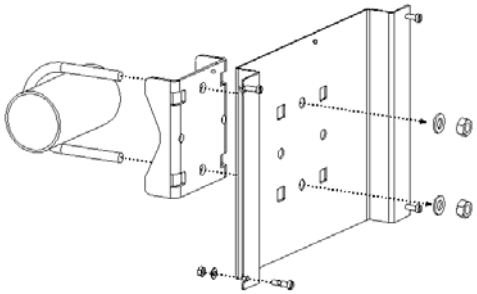


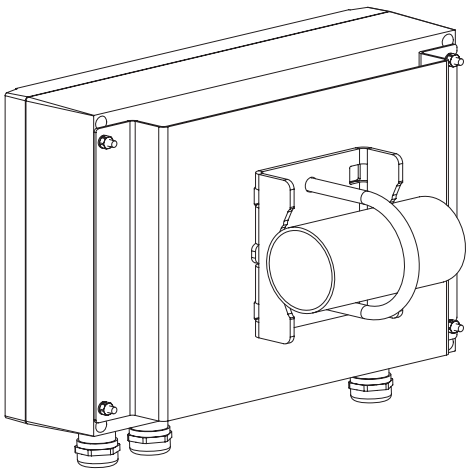
FLUXUS ADM 7907



2 " Pipe Mounting Kit (option)

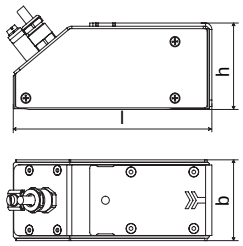
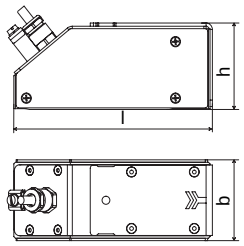
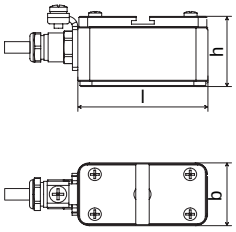
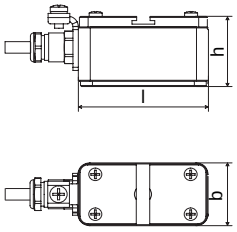
FLUXUS ADM 7407



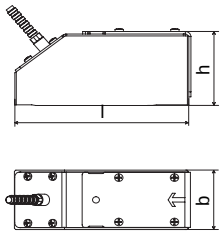
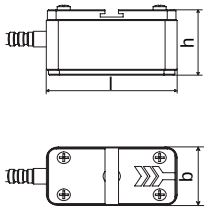


Transducers

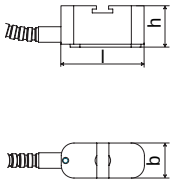
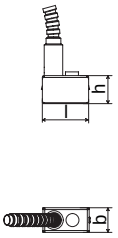
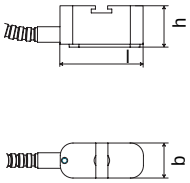
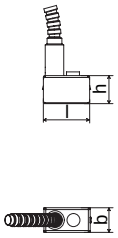
Shear Wave Transducers (for ATEX zone 1)

technical type		CDG1N31	CDK1N31	CDM1N31	CDQ1N31
order code		**FSG-NA1TS**	**FSK-NA1TS**	**FSM-NA1TS**	**FSQ-NA1TS**
transducer frequency	MHz	0.2	0.5	1	4
outer pipe diameter					
min. extended	mm	400	100	50	10
min. recommended	mm	500	200	100	25
max. recommended	mm	6500	3600	2500	400
max. extended	mm	6500	4500	3400	400
pipe wall thickness					
min.	mm	-	-	-	-
max.	mm	-	-	-	-
material					
housing		PEEK with stainless steel cap	PEEK with stainless steel cap	stainless steel	stainless steel
contact surface		PEEK	PEEK	PEEK	PEEK
degree of protection according to EN 60529		IP 65	IP 65	IP 65	IP 65
dimensions					
length l	mm	129.5	126.5	60	60
depth b	mm	50	50	30	30
height h	mm	64	53.5	33.5	33.5
dimensional drawing					
operating temperature					
min.	°C	-40	-40	-20	-20
max.	°C	+130	+130	+120	+120
explosion protection					
ATEX zone		1	1	1	1
marking		CE 0044; Ex II 2G Ex q II T6...T3 Ta -40...+180 °C Ex II 2D Ex tD A21 IP65 TX	CE 0044; Ex II 2G Ex q II T6...T3 Ta -40...+180 °C Ex II 2D Ex tD A21 IP65 TX	CE 0044; Ex II 2G EEx m II T6...T4 Ta -20...+120 °C	CE 0044; Ex II 2G EEx m II T6...T4 Ta -20...+120 °C
certification		IBExU04ATEX1011 X	IBExU04ATEX1011 X	IBExU98ATEX1012 X	IBExU98ATEX1012 X
type of protection		powder filling	powder filling	encapsulation	encapsulation
FM marking		-	-	-	-
type of protection		-	-	-	-

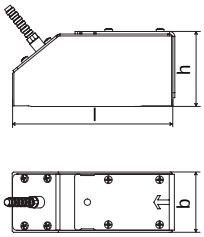
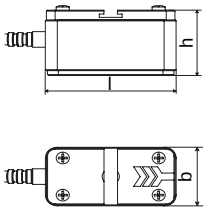
Shear Wave Transducers (for ATEX zone 2, FM or without Explosion Protection)

technical type		CDG1N52	CDK1N52	CDM1N52
order code		**FSG-NA2TS** **FSG-NF2TS** **FSG-NNNTS**	**FSK-NA2TS** **FSK-NF2TS** **FSK-NNNTS**	**FSM-NA2TS** **FSM-NF2TS** **FSM-NNNTS**
transducer frequency	MHz	0.2	0.5	1
outer pipe diameter				
min. extended	mm	400	100	50
min. recommended	mm	500	200	100
max. recommended	mm	6500	3600	2500
max. extended	mm	6500	4500	3400
pipe wall thickness				
min.	mm	-	-	-
max.	mm	-	-	-
material				
housing		PEEK with stainless steel cap	PEEK with stainless steel cap	stainless steel
contact surface		PEEK	PEEK	PEEK
degree of protection according to EN 60529		IP 67	IP 67	IP 67
dimensions				
length l	mm	129.5	126.5	60
depth b	mm	47	47	30
height h	mm	66.4	55.9	33.5
dimensional drawing				
operating temperature				
min.	°C	-40	-40	FSM-NA2TS: -20 FSM-NF2TS: -40 FSM-NNNTS: -40
max.	°C	FSG-NA2TS: +130 FSG-NF2TS: +125 FSG-NNNTS: +130	FSK-NA2TS: +130 FSK-NF2TS: +125 FSK-NNNTS: +130	FSM-NA2TS: +130 FSM-NF2TS: +125 FSM-NNNTS: +130
explosion protection				
ATEX zone		FSG-NA2TS: 2	FSK-NA2TS: 2	FSM-NA2TS: 2
marking		CE Ex II 3G Ex nA II T6...T3 Ta -55...+190 °C Ex II 3D Ex tD A22 IP67 TX	CE Ex II 3G Ex nA II T6...T3 Ta -55...+190 °C Ex II 3D Ex tD A22 IP67 TX	CE Ex II 3G Ex nA II T6...T4 Ta -20...+130 °C Ex II 3D Ex tD A22 IP67 TX
certification		-	-	-
type of protection		non incendive, protection by enclosure	non incendive, protection by enclosure	non incendive, protection by enclosure
FM marking		FSG-NF2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	FSK-NA2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	FSM-NA2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C
type of protection		non incendive	non incendive	non incendive

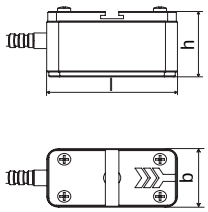
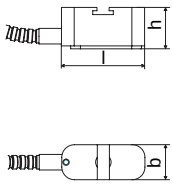
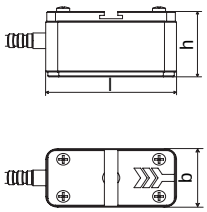
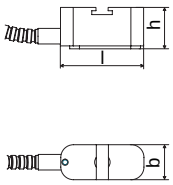
Shear Wave Transducers (for ATEX zone 2, FM or without Explosion Protection)

technical type		CDQ1NZ7	CDS1NZ7	CDQ1N52	CDS1N52
order code		**FSQ-NNNAS**	**FSS-NNNAS**	**FSQ-NA2TS** **FSQ-NF2TS** **FSQ-NNNTS**	**FSS-NNNTS**
transducer frequency	MHz	4	8	4	8
outer pipe diameter					
min. extended	mm	10	6	10	6
min. recommended	mm	25	10	25	10
max. recommended	mm	400	70	400	70
max. extended	mm	400	70	400	70
pipe wall thickness					
min.	mm	-	-	-	-
max.	mm	-	-	-	-
material					
housing		stainless steel	stainless steel	stainless steel	stainless steel
contact surface		PEEK	PEI	PEEK	PEI
degree of protection according to EN 60529		IP 65	IP 65	IP 67	IP 65
dimensions					
length l	mm	42.5	25	42.5	25
depth b	mm	18	13	18	13
height h	mm	21.5	17	21.5	17
dimensional drawing					
operating temperature					
min.	°C	-30	-30	FSQ-NA2TS: -20 FSQ-NF2TS: -40 FSQ-NNNTS: -40	-30
max.	°C	+130	+130	FSQ-NA2TS: +130 FSQ-NF2TS: +125 FSQ-NNNTS: +130	+130
explosion protection					
ATEX zone		-	-	FSQ-NA2TS: 2	-
marking		-	-	FSQ-NA2TS: CE Ex II3G Ex nA II T6...T4 Ta -20...+130 °C Ex II3D Ex tD A22 IP67 TX	-
certification		-	-	-	-
type of protection		-	-	non incendive, protection by enclosure	-
FM marking		-	-	FSQ-NF2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	-
type of protection		-	-	non incendive	-

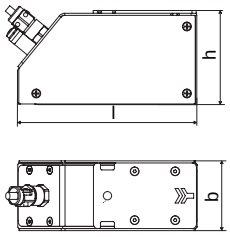
Shear Wave Transducers (without Explosion Protection and with Connection System AS)

technical type		CDG1NZ7	CDK1NZ7	CDM1NZ7
order code		**FSG-NNNAS**	**FSK-NNNAS**	**FSM-NNNAS**
transducer frequency	MHz	0.2	0.5	1
outer pipe diameter				
min. extended	mm	400	100	50
min. recommended	mm	500	200	100
max. recommended	mm	6500	3600	2500
max. extended	mm	6500	4500	3400
pipe wall thickness				
min.	mm	-	-	-
max.	mm	-	-	-
material				
housing		PEEK with stainless steel cap	PEEK with stainless steel cap	stainless steel
contact surface		PEEK	PEEK	PEEK
degree of protection according to EN 60529		IP 65	IP 65	IP 65 option: IP 68
dimensions				
length l	mm	129.5	126.5	60
depth b	mm	47	47	30
height h	mm	66.4	55.9	33.5
dimensional drawing				
operating temperature				
min.	°C	-40	-40	-40
max.	°C	+130	+130	+130
explosion protection				
ATEX zone		-	-	-
marking		-	-	-
certification		-	-	-
type of protection		-	-	-
FM marking		-	-	-
type of protection		-	-	-

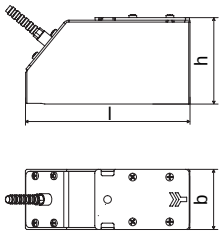
Shear Wave Transducers (High Temperature)

technical type		CDM1EZ7	CDQ1EZ7	CDM1E52	CDQ1E52
order code		**FSM-ENNAS**	**FSQ-ENNAS**	**FSM-ENNTS** **FSM-EF2TS**	**FSQ-ENNTS** **FSQ-EF2TS**
transducer frequency	MHz	1	4	1	4
outer pipe diameter					
min. extended	mm	50	10	50	10
min. recommended	mm	100	25	100	25
max. recommended	mm	2500	400	2500	400
max. extended	mm	3400	400	3400	400
pipe wall thickness					
min.	mm	-	-	-	-
max.	mm	-	-	-	-
material					
housing contact surface		stainless steel Sintimid	stainless steel Sintimid	stainless steel Sintimid	stainless steel Sintimid
degree of protection according to EN 60529		IP 65	IP 65	IP 65	IP 65
dimensions					
length l	mm	60	42.5	60	42.5
depth b	mm	30	18	30	18
height h	mm	33.5	21.5	33.5	21.5
dimensional drawing					
operating temperature					
min.	°C	-30	-30	-30	-30
max.	°C	+200	+200	**FSM-ENNTS:** +200 **FSM-EF2TS: +125**	**FSQ-ENNTS:** +200 **FSQ-EF2TS: +125**
explosion protection					
ATEX zone		-	-	-	-
marking		-	-	-	-
certification		-	-	-	-
type of protection		-	-	-	-
FM marking		-	-	**FSM-EF2TS**: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	**FSQ-EF2TS**: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C
type of protection		-	-	non incendive	non incendive

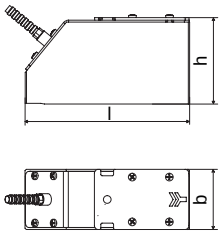
Lamb Wave Transducers (for ATEX Zone 1)

technical type		CRG1N33	CRH1N33	CRK1N33
order code		**FLG-NA1TS**	**FLH-NA1TS**	**FLK-NA1TS**
transducer frequency	MHz	0.2	0.3	0.5
outer pipe diameter				
min. extended	mm	500	400	220
min. recommended	mm	600	450	250
max. recommended	mm	5000	3500	2100
max. extended	mm	6500	5000	4500
pipe wall thickness				
min.	mm	14	9	5
max.	mm	27	18	11
material				
housing		PPSU with stainless steel cap	PPSU with stainless steel cap	PPSU with stainless steel cap
contact surface		PPSU	PPSU	PPSU
degree of protection according to EN 60529		IP 65	IP 65	IP 65
dimensions				
length l	mm	128.5	128.5	128.5
depth b	mm	50	50	50
height h	mm	67.5	67.5	67.5
dimensional drawing				
operating temperature				
min.	°C	-40	-40	-40
max.	°C	+140	+140	+140
explosion protection				
ATEX zone		1	1	1
marking		CE 0044; Ex II 2G Ex q II T6...T3 Ta -40...+140 °C Ex II 2D Ex tD A21 IP65 TX	CE 0044; Ex II 2G Ex q II T6...T3 Ta -40...+140 °C Ex II 2D Ex tD A21 IP65 TX	CE 0044; Ex II 2G Ex q II T6...T3 Ta -40...+140 °C Ex II 2D Ex tD A21 IP65 TX
certification		IBExU04ATEX1011 X	IBExU04ATEX1011 X	IBExU04ATEX1011 X
type of protection		powder filling	powder filling	powder filling
FM marking		-	-	-
type of protection		-	-	-

Lamb Wave Transducers (for ATEX Zone 2, FM or without Explosion Protection)

technical type		CRG1N52	CRH1N52	CRK1N52
order code		**FLG-NA2TS** **FLG-NF2TS** **FLG-NNNTS**	**FLH-NA2TS** **FLH-NF2TS** **FLH-NNNTS**	**FLK-NA2TS** **FLK-NF2TS** **FLK-NNNTS**
transducer frequency	MHz	0.2	0.3	0.5
outer pipe diameter				
min. extended	mm	500	400	220
min. recommended	mm	600	450	250
max. recommended	mm	5000	3500	2100
max. extended	mm	6500	5000	4500
pipe wall thickness				
min.	mm	14	9	5
max.	mm	27	18	11
material				
housing		PPSU with stainless steel cap	PPSU with stainless steel cap	PPSU with stainless steel cap
contact surface		PPSU	PPSU	PPSU
degree of protection according to EN 60529		IP 67	IP 67	IP 67
dimensions				
length l	mm	128.5	128.5	128.5
depth b	mm	47	47	47
height h	mm	69.9	69.9	69.9
dimensional drawing				
operating temperature				
min.	°C	-40	-40	-40
max.	°C	FLG-NA2TS: +150 FLG-NF2TS: +125 FLG-NNNTS: +170	FLH-NA2TS: +150 FLH-NF2TS: +125 FLH-NNNTS: +170	FLK-NA2TS: +150 FLK-NF2TS: +125 FLK-NNNTS: +170
explosion protection				
ATEX zone		FLG-NA2TS: 2	FLH-NA2TS: 2	FLK-NA2TS: 2
marking		FLG-NA2TS: CE Ex II 3G Ex nA II T6...T3 Ta -55...+150 °C Ex II 3D Ex tD A22 IP67 TX	FLH-NA2TS: CE Ex II 3G Ex nA II T6...T3 Ta -55...+150 °C Ex II 3D Ex tD A22 IP67 TX	FLK-NA2TS: CE Ex II 3G Ex nA II T6...T3 Ta -55...+150 °C Ex II 3D Ex tD A22 IP67 TX
certification		-	-	-
type of protection		non incendive, protection by enclosure	non incendive, protection by enclosure	non incendive, protection by enclosure
FM marking		FLG-NF2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	FLH-NF2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C	FLK-NF2TS: NI/Cl. I, II, III/Div. 2/ Gp A-G/T4 Ta = 125 °C
type of protection		non incendive	non incendive	non incendive

Lamb Wave Transducers (without Explosion Protection)

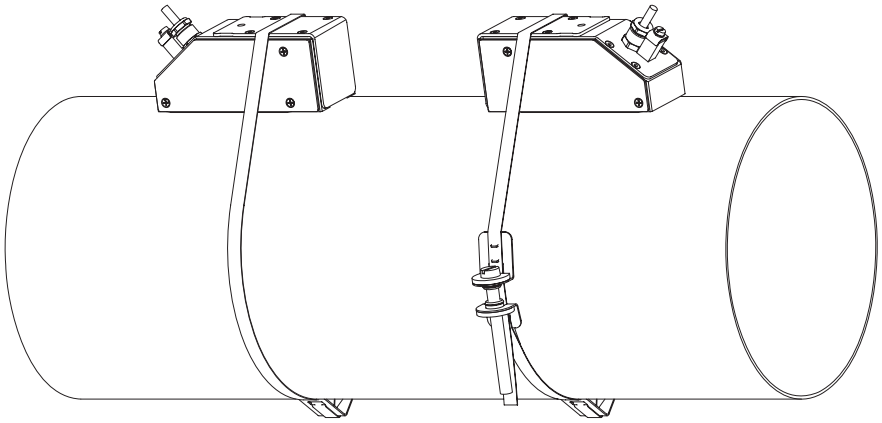
technical type		CRG1NC3	CRH1NC3	CRK1NC3
order code		**FLG-NNNAS**	**FLH-NNNAS**	**FLK-NNNAS**
transducer frequency	MHz	0.2	0.3	0.5
outer pipe diameter				
min. extended	mm	500	400	220
min. recommended	mm	600	450	250
max. recommended	mm	5000	3500	2100
max. extended	mm	6500	5000	4500
pipe wall thickness				
min.	mm	14	9	5
max.	mm	27	18	11
material				
housing contact surface		PPSU with stainless steel cap PPSU	PPSU with stainless steel cap PPSU	PPSU with stainless steel cap PPSU
degree of protection according to EN 60529		IP 65	IP 65	IP 65
dimensions				
length l	mm	128.5	128.5	128.5
depth b	mm	47	47	47
height h	mm	69.9	69.9	69.9
dimensional drawing				
operating temperature				
min. max.	°C °C	-40 +170	-40 +170	-40 +170
explosion protection				
ATEX zone		-	-	-
marking		-	-	-
certification		-	-	-
type of protection		-	-	-
FM marking		-	-	-
type of protection		-	-	-

Order Code Key for Transducers

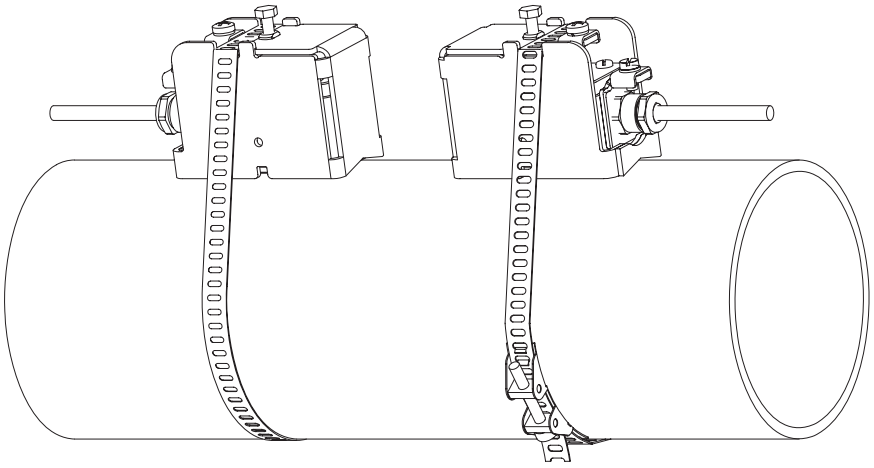
transducer model	frequency	-	temperature	explosion protection	connection system	-	extension cable	description
FL								set of ultrasonic flow transducers for liquids measurement, Lamb wave
FS								set of ultrasonic flow transducers for liquids measurement, shear wave
	G							0.2 MHz
	H							0.3 MHz (Lamb wave only)
	K							0.5 MHz
	M							1 MHz (shear wave only)
	Q							4 MHz (shear wave only)
	S							8 MHz (shear wave only)
			N					normal temperature range
			E					extended temperature range (shear wave transducers with transducer frequency M, Q)
				A1				ATEX zone 1 (with connection system TS)
				A2				ATEX zone 2 (with connection system TS)
				F2				FM Class I Div. 2 (ADM 7407 with connection system TS)
				NN				not explosion proof
					AS			with Amphenol connector
					TS			direct connection or connection via junction box
							XXX	cable length in m, for max. length of extension cable see page 18 connection system TS: 0 m: without junction box > 0 m: with junction box JB01 (ATEX zone 1) or JB02 (ATEX zone 2, FM, not explosion proof)
example								
FS	G	-	N	A1	TS	-	030	shear wave transducer 0.2 MHz, normal temperature range, for ATEX zone 1, connection system TS with junction box JB01 and 30 m extension cable
		-				-		

Transducer Pipe Mounting Fixtures

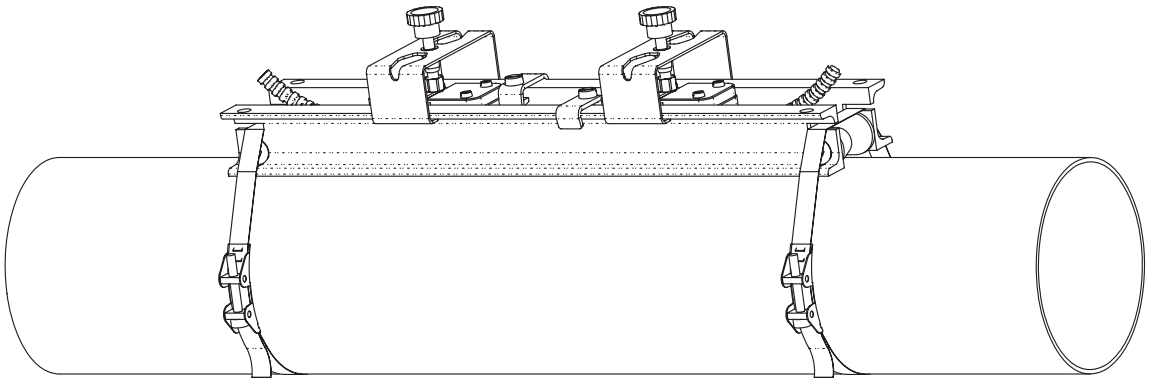
Tension Straps and Clasps



Tension Straps, Clasps and Mounting Shoes



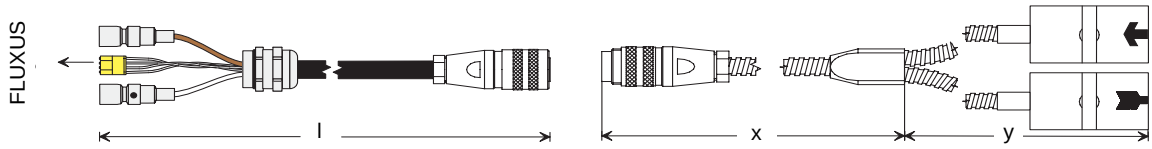
Variofix Mounting Fixture VFX with Tension Straps and Clasps



Connection Systems

Connection System AS (not explosion proof transducers)

transducer frequency		G, H, K			M, P			Q			S		
		x	y	l	x	y	l	x	y	l	x	y	l
cable length	m	2	3	≤ 100	2	2	≤ 100	2	1	≤ 50	1	1	≤ 20



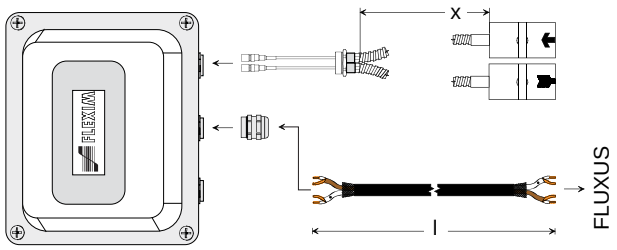
Connection System TS

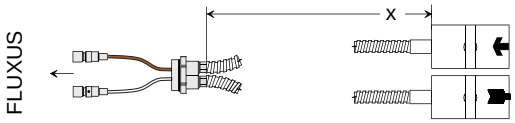
transducer frequency		G, H, K		M, P		Q		S	
		x	l	x	l	x	l	x	l
cable length	m	5	≤ 300	4	≤ 300	3	≤ 90	2	≤ 40

connection via junction box | **direct connection**

ATEX zone 2, FM and not explosion proof transducers

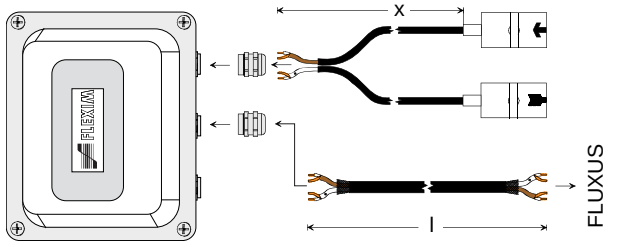
JB02

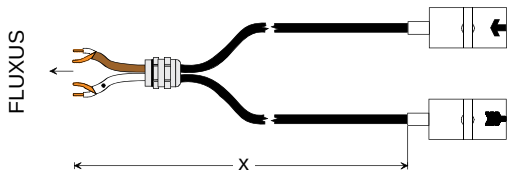




ATEX zone 1

JB01





x, y - transducer cable length

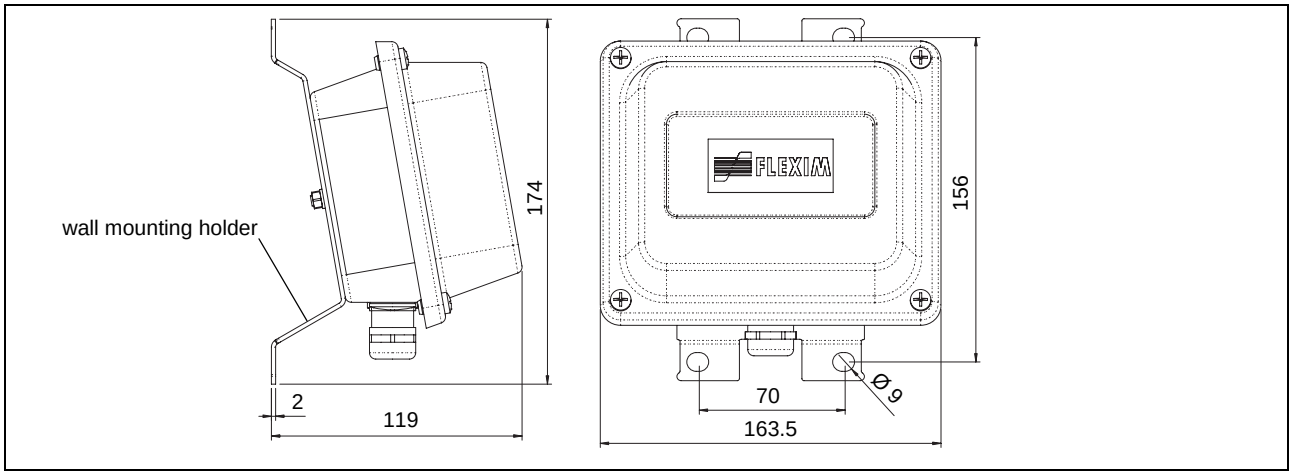
l - max. length of extension cable

Junction Box

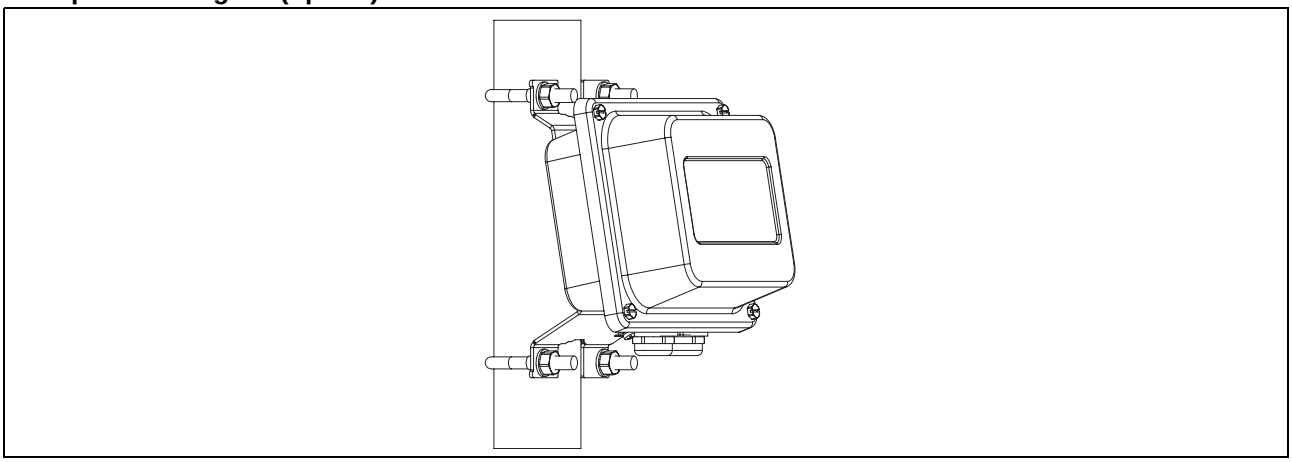
Technical Data

technical type		JB01S4E3M	JB02
dimensions		see dimensional drawing	see dimensional drawing
installation		wall mounting option: 2 " pipe mounting	wall mounting option: 2 " pipe mounting
material			
housing		stainless steel 316L (1.4404)	stainless steel 304 (1.4301)
gasket		silicone	silicone
degree of protection according to EN 60529		IP 67	IP 67
operating temperature			
min.	°C	-40	-40
max.	°C	+80	+80
explosion protection			
ATEX zone		1	2
marking		CE 0044 Ex II2G Ex e mb II T6...T4 T_a -40...+80 °C	CE Ex II3G Ex nA II T6...T4 T_a -40...+80 °C
certification		IBExU06ATEX1161	-
type of protection		junction box: increased safety decoupled network: encapsulation	non incendive

Dimensions



2 " Pipe Mounting Kit (option)



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