FLEXIM

Technical specification

PIOX S502ID

Reliable fluid detection with non-invasive ultrasonic measurement

Permanently installed ultrasonic measuring system for the non-invasive detection of one of 2...5 fluids during filling and transferring operations

A safe fluid detection can avoid filling with wrong fluids and thus the formation of dangerous fluid mixtures.

Features

- Safe fluid detection based on the sound speed of the fluid
- Detection of unsafe operating statuses
- Measuring rate of 1 s
- Generally recognized state of the art according to TRGS 509
- Ideally suited for aggressive and toxic fluids
- One measuring channel, one temperature input available
- Current output and binary output available

Applications

- Food industry
- Chemical industry
- Electroplating plants
- Pharmaceutical industry
- Power plants
- Mechanical engineering

PIOX S502ID

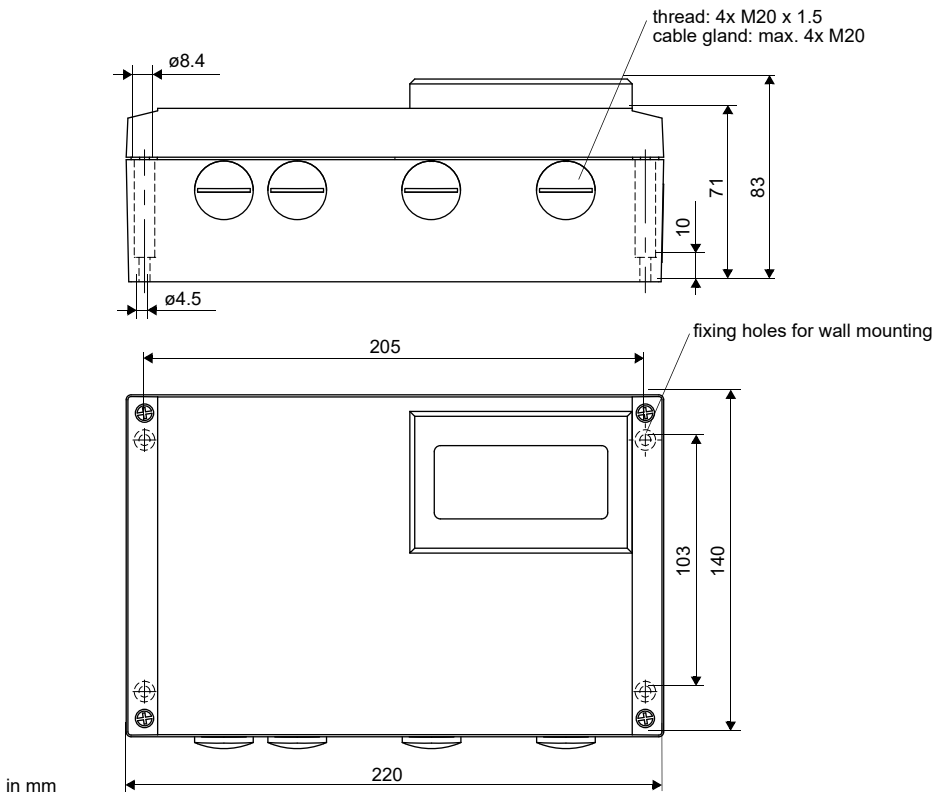
Transmitter

Technical data

		PIOX S502ID
		
design		field device with 1 measuring channel
application		fluid detection
pipe		
pipe diameter		DN25, DN 32, DN40, DN50, DN 65
material		SS, PVC, PE
measurement		
measurement principle		measurement of sound speed
fluid		$NaClO/HCl$, $NaClO/HNO_3$, $NaClO/H_2SO_4$, $NaOH/HCl$, $NaOH/HNO_3$, $NaOH/H_2SO_4$, H_2SO_4/HCl, others on request where • NaClO (sodium hypochlorite) 12...16 % • NaOH (caustic soda solution) 30...50 % • H_2SO_4 (sulfuric acid) 93...100 % • HCl (hydrochloric acid) 15...37 % • HNO_3 (nitric acid) 50...65 %
fluid temperature	°C	0...40
transmitter		
power supply		• 100...230 V/50...60 Hz or • 20...32 V DC
power consumption	W	< 10
number of measuring channels		1
measuring cycle	Hz	10
response time	s	1
housing material		aluminum, powder coated
degree of protection		IP66
dimensions	mm	see dimensional drawing
weight	kg	1.9
fixation		wall mounting, optional: 2" pipe mounting
ambient temperature	°C	-10...+60
display		2 x 16 characters, dot matrix, backlight
menu language		English, German
outputs		
		The outputs are galvanically isolated from the transmitter.
• current output		
number		1 (status output)
range	mA	0, 4, 20
active output		R_{ext} < 500 Ω
• binary output		
number		2 (status output)
optorelay		28 V/100 mA
inputs		
		The inputs are galvanically isolated from the transmitter.
• temperature input		
number		1
type		Pt100
connection		4-wire
range	°C	-150...+560
resolution	K	0.01
accuracy		±0.01 % of reading ±0.03 K

Dimensions

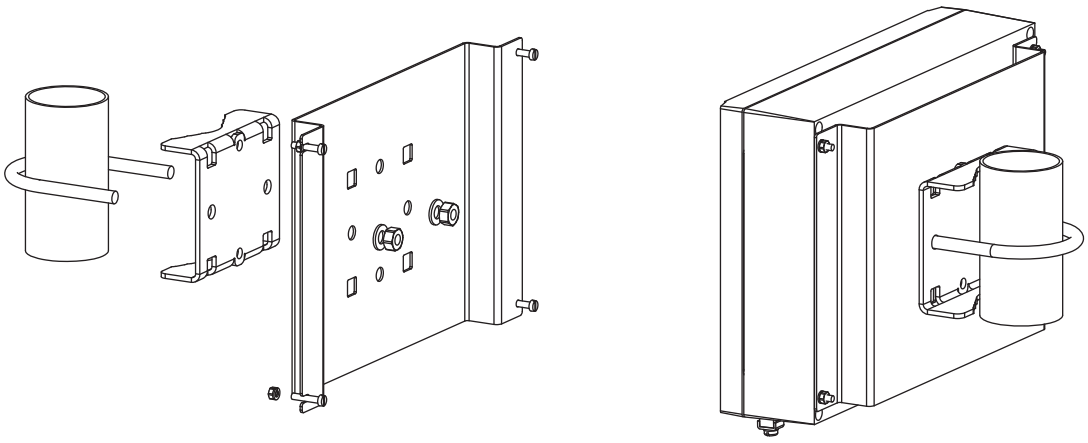
***502**



in mm

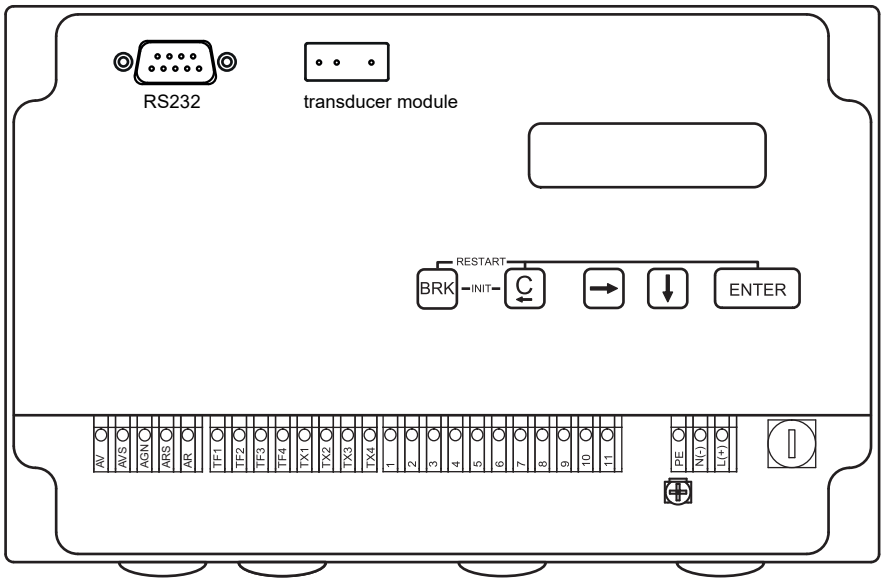
2" pipe mounting kit

50



Terminal assignment

***502**



power supply[1]		
terminal	**connection (AC)**	**connection (DC)**
PE	earth	earth
N(-)	neutral	-
L(+)	phase	+
transducers, extension cable		
terminal	**connection**	**transducer**
AV	signal	
AVS	internal shield	
ARS	internal shield	
AR	signal	
cable gland	external shield	

outputs[1]	
terminal	**connection**
1(-), 2(+)	binary output B1
3(-), 4(+)	binary output B2
5(-), 6(+)	current output I1

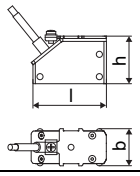
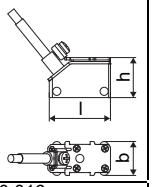
inputs[1]		
terminal	**temperature probe**	
	direct connection	**connection with extension cable**
TF1	red	red
TF2	red/blue	grey
TF3	white/blue	blue
TF4	white	white

[1] cable (by customer): e.g. flexible leads, with insulated wire end ferrules, lead cross sectional area: 0.25...2.5 mm^2

Transducers

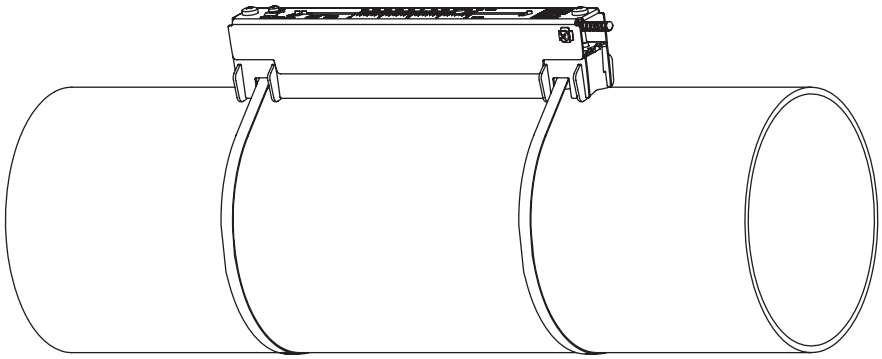
Technical data

Shear wave transducers

technical type		CDM2LZ1	CDP2LZ1	CDQ2LZ1
transducer frequency	MHz	1	2	4
material				
housing		PEEK with stainless steel cap 316L (1.4404)		
contact surface		PEEK		
degree of protection		IP67		
transducer cable				
type		2606		
length	m	10		
dimensions				
length l	mm	64		40
width b	mm	32		22
height h	mm	40.5		25.5
dimensional drawing				
weight (without cable)	kg	0.066		0.016
pipe surface temperature				
min.	°C	-40		
max.	°C	+100		
ambient temperature				
min.	°C	-40		
max.	°C	+100		

Transducer mounting fixture

Variofix L (VLM, VLQ)



material: stainless steel 316Ti (1.4571), 316L (1.4404), 17-7PH (1.4568)

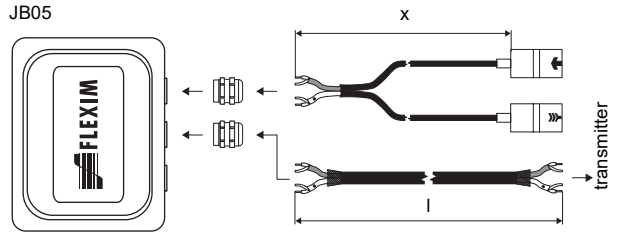
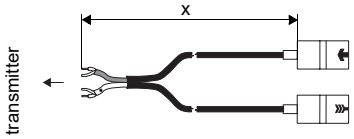
inner length:
VLM: 234 mm
VLQ: 176 mm

dimensions:
VLM: 309 x 57 x 63 mm
VLQ: 247 x 43 x 47 mm

Coupling materials for transducers

type	**ambient temperature** °C
coupling compound type N	-30...+130
coupling foil type VT	-10...+200

Connection systems

connection with extension cable	direct connection	transducers technical type
		***2LZ1

Cable

transducer cable		
type		**2606**
weight	kg/m	0.033
ambient temperature	°C	-40...+100
cable jacket		
material		PUR
outer diameter	mm	5
thickness	mm	
colour		grey
shield		x

extension cable		
type		**2615**
weight	kg/m	0.18
ambient temperature	°C	-30...+70
properties		halogen free fire propagation test according to IEC 60332-1 combustion test according to IEC 60754-2
cable jacket		
material		PUR
outer diameter	mm	12
thickness	mm	2
colour		black
shield		x

Cable length

transducer frequency		**M, P**		**Q**	
connection system TS					
transducers technical type		x	l	x	l
****LZ1	m	4	≤ 90	3	≤ 90

x - transducer cable length

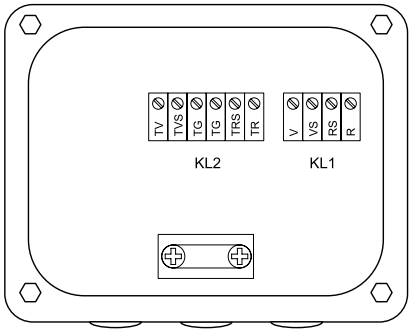
l - max. length of extension cable (depending on application)

Junction box

Technical data

JB05		
weight	kg	1.2 kg
fixation		wall mounting optional: 2" pipe mounting
material		
housing		stainless steel 316L (1.4404)
gasket		silicone
degree of protection		IP67
ambient temperature		
min.	°C	-40
max.	°C	+80

Connection



Transducers

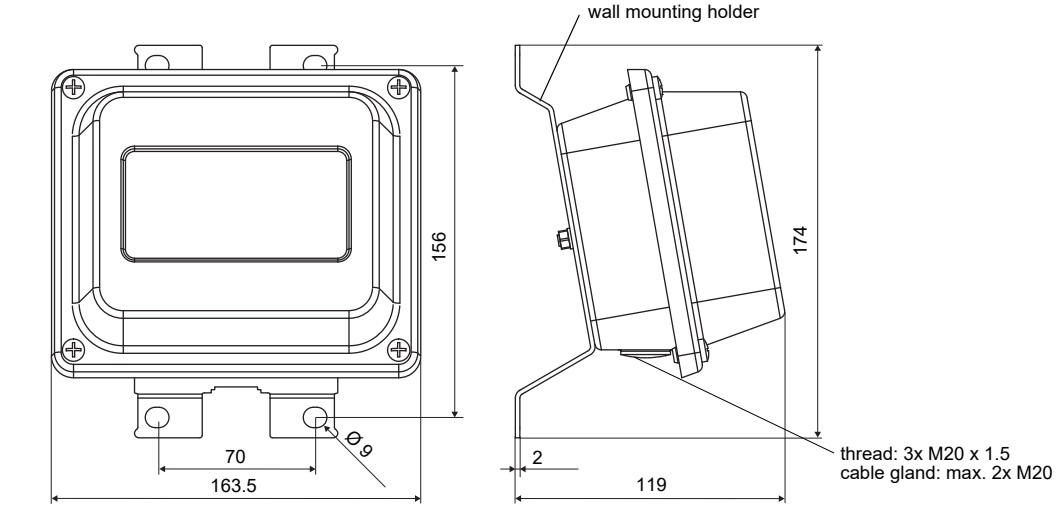
terminal strip	terminal	connection	transducer
KL1	V	signal	
	VS	internal shield	
	RS	internal shield	
	R	signal	

Extension cable

terminal strip	terminal	connection
KL2	TV	signal
	TVS	internal shield
	TRS	internal shield
	TR	signal

Dimensions

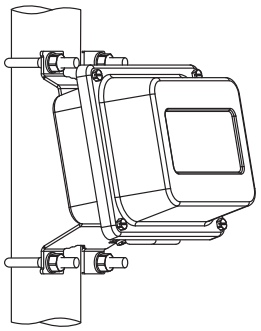
JB0*, JBP*



in mm

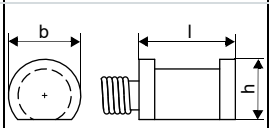
2" pipe mounting kit

JB**

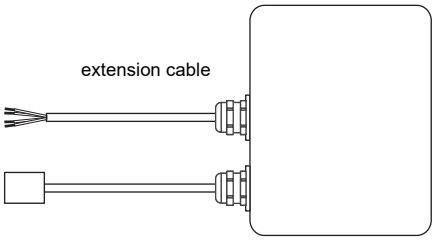


Clamp-on temperature probe (optional)

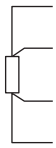
Technical data

PT12N-LC		
type		Pt100
connection		4-wire
measuring range	°C	-30...+250
accuracy T		±(0.15 °C + 2 · 10^{-3} · |T [°C]|) class A
response time	s	50
housing		aluminum
degree of protection		IP66
dimensions		
length l	mm	20
width b	mm	15
height h	mm	13
dimensional drawing		
weight	kg	0.25
accessories		
thermal conductivity foil 250 °C		x

connection system

connection with extension cable	direct connection
	

connection

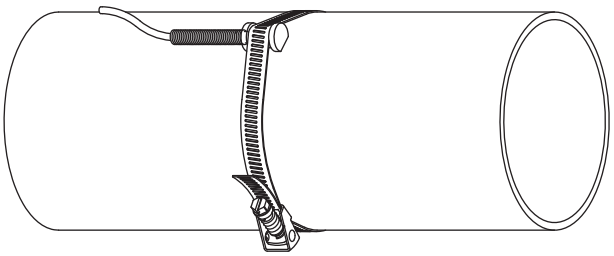
	temperature probe
	red
	red/blue
	white/blue
	white

cable

		temperature probe	extension cable
type		4 x 0.25 mm² black	LIYCY 8 x 0.14 mm² grey
standard length	m	15	5/10/25
max. length	m	-	200
cable jacket		PTFE	PVC

Fixation

tension strap PT12N

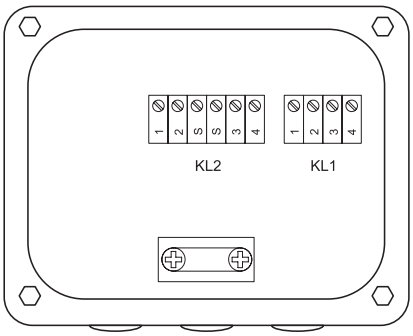


material: stainless steel 301 (1.4310), 410 (1.4006)

Junction box

JBT3		
weight	kg	1.2 kg
fixation		wall mounting optional: 2" pipe mounting
material		
housing		stainless steel 316L (1.4404)
gasket		silicone
degree of protection		IP67
ambient temperature		
min.	°C	-40
max.	°C	+80

Connection



Temperature probe

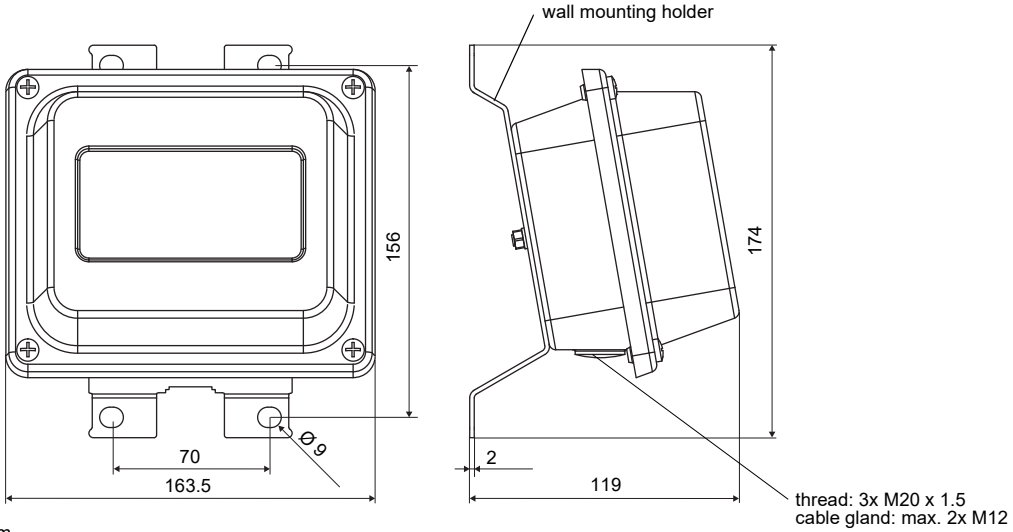
terminal strip	terminal	connection
KL1	1	red
	2	red/blue
	3	white
	4	white/blue

Extension cable

terminal strip	terminal	connection
KL2	1	red
	2	grey
	3	white
	4	blue

Dimensions

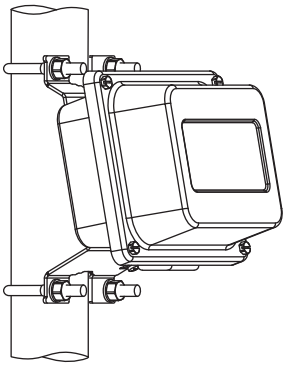
JBTx



in mm

2" pipe mounting kit

JBxx



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