Пачев, Христо Б.

От: Богоева, Юлия К.
Изпратено: 28 февруари 2023 г. 13:28
До: Пачев, Христо Б.
Як: Александров, Пламен Г.
Относно: FW: Пазарна консултация 50926
Прикачени файлов: TSFLUXUS_F532WDV1-0EN_Leu.pdf; Authorization letter 2023.pdf; Authorization letter_FLEXIM_2023_Translation.pdf; F532_AEC_02_2023.pdf

ВХ-Е-1342/28.02.2023

From: Христо Загорски <zagorski@mail.orbitel.bg>
Sent: Tuesday, February 28, 2023 11:58 AM
To: commercial <commercial@npp.bg>
Subject: Пазарна консултация 50926

Уважаеми Дами и Господа,

Приложено Ви изпращам оферта за контактни акустични гелове и разходомери, производство на фирма FLEXIM GmbH – Германия. Поради проблеми във веригите за доставки на електронни компоненти серията Fluxus F501 беше заменена от серията Fluxus F532WD. Основната разлика между двете серии е в електронното устройство и в дължината на кабелите на ултразвуковите датчици, която вече стандартно е 4 метра. При необходимост от по-дълги кабели можем да предложим свързваща кутия и допълнителен кабел.

Поздрави
Христо Загорски

"Загорски ХМ" ЕООД
Стара Загора
тел. 042 645 118
моб. 0888 831512
факс: 042 628 914
e-mail: zagorski@mail.orbitel.bg
office@zagorski-xm.com

6004 Стара Загора,
ул."Августа Траяна" № 17 Б,
факс 042/628 914,
тел. 042/645 118
ИН по ДДС BG123027915

ЗАГОРСКИ ХМ ЕООД

До: commercial@npp.bg **Факс №:**

Фирма: „АЕЦ Козлодуй" ЕООД **Дата**: 27/02/2023

Относно: Пазарна консултация **Вс. стр.:** 2

Копие: **На Ваш №: 50926**

О Ф Е Р Т А

№ FL 023/27.02.2023

Поз.	Описание	Ед. цена	Кол.	Цена (лв.)
1.	**ACC-PO-601-/CE1** [CE1] Тип N Контактен акустичен гел -30...+130°C, туба 100ml	**75.00**	**60**	**4500.00**
2.	**ACC-PO-601-/CE2** [CE2] Type E Контактен акустичен гел -30...+200°C, туба 100ml	**120.00**	**30**	**3600.00**
3.	**AWA-W1030-1A4NLX-SVL** [F532WD] FLUXUS F532WD с аналогов изход Стационарна ултразвукова кламп-он система за измерване на дебит на вода, включваща: - 1 измервателен канал - 1 токов изход 4...20 mA, активен/пасивен - 2 цифрови изхода с оптореле: импулсни, бинарни или честотни - сервизен интерфейс: USB и Ethernet **[1]** 1 измервателен канал **[A] Алуминиев корпус** **[4]** Захранване: 11...32 V DC **[N]** N/A **[LX]** Многоезична кратка инструкция за x532 и електронна инструкция за експлоатация на USB стик **[S]** Комплект ултразвукови датчици CDM2N53 със сертификат за калибриране и SENSPROM, калибрирани за течности Вътрешен диаметър на тръбата - препоръчителен: 100…1000 мм - разширен: 50…1200 мм - дължина на кабела: 4 метра - температура: -40…+130 °C - контактна паста Flexim -30...+200°C, 10g туба - контактно фолио (-10...+200 °C, 2 бр.) **[VL]** приспособление за постоянен монтаж на датчици Variofix L 2x Variofix L, за датчици с честоти P, M Неръждаема стомана SS316 Монтиране на датчиците с обтягаща лента	**7 990.00**	**2**	**15 980.00**

	Дължината на обтягащата лента е съобразена с препоръчителния вътрешен диаметър на тръбата			
4.	Обща сума DDP без ДДС			**24 080.00**

Словом: Двадесет и четири хиляди и осемдесет лева

Цената е франко адрес на клиента без ДДС.

Гаранционен срок: 12 месеца от датата на монтажа, но не повече от 18 месеца от датата на доставка

Условия на плащане: до 30 дни след доставка в лева по банков път
Банка: ПроКредит Банк, клон Стара Загора,
IBAN № BG21PRCB92301048356616
BIC код на ПроКредит Банк: PRCBBGSF

Срок на доставка: до 120 дни

Документи, придружаващи доставката:

- сертификат за калибриране
- декларация за произход
- декларация за съответствие на производителя
- документ с условия за съхранение

Валидност на офертата: 31.05.2023

С Уважение:

инж. Христо Загорски
(Управител)

Technical specification

FLUXUS F532WD

Permanently installed clamp-on measuring system for water and wastewater pipes

Features

- Highly accurate non-invasive flow and temperature measurement irrespective of the flow direction (bidirectional), with outstanding measurement dynamics, excellent zero-point stability and high repeatability of the measurement results
- Submersible ultrasonic transducers (IP68) provide a reliable and durable solution for flow measurement on buried pipes or for applications where the measuring point can be overflowed
- Simple retrofitting on existing water networks without interruption of supply and disposal and without the need for shaft construction and pipe intrusion, thus saving time and cost

Applications

- Flow and temperature measurement on buried water and wastewater pipes
- Flow and temperature measurement on water and wastewater pipes which can be overflowed

FLEXIM GmbH
Boxberger Str. 4
12681 Berlin
Germany
Tel.: +49 (30) 93 66 76 60
Fax: +49 (30) 93 66 76 80

internet: www.flexim.com
e-mail: info@flexim.com

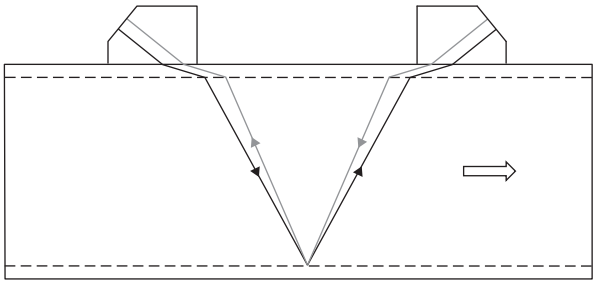
TSFLUXUS_F532WDV1-0EN_Leu, 2023-01-01

Function

Measurement principle

The transducers are mounted on the pipe which is completely filled with the fluid. The ultrasonic signals are emitted alternately by a transducer and received by the other. The physical quantities are determined from the transit times of the ultrasonic signals.

Path of the ultrasonic signal in the flowing fluid



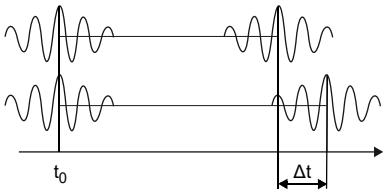
Transit time difference principle

As the fluid where the ultrasound propagates is flowing, the transit time of the ultrasonic signal in flow direction is shorter than the one against the flow direction.

The transit time difference Δt is measured and allows the flowmeter to determine the average flow velocity along the propagation path of the ultrasonic signals. A flow profile correction is then performed in order to obtain the area averaged flow velocity, which is proportional to the volumetric flow rate.

The integrated microprocessors control the entire measuring cycle. The received ultrasonic signals are checked for measurement usability and evaluated for their reliability. Noise signals are eliminated.

Transit time difference Δt



HybridTrek

If the gaseous or solid content in the fluid increases occasionally during measurement, a measurement with the transit time difference principle is no longer possible. NoiseTrek mode will then be selected by the flowmeter. This measurement method allows the flowmeter to achieve a stable measurement even with high gaseous or solid content.

The transmitter automatically toggles between the TransitTime and the NoiseTrek mode without having to change the measuring setup.

Calculation of volumetric flow rate

$$\dot{V} = k_{Re} \cdot A \cdot k_a \cdot \frac{\Delta t}{2 \cdot t_\gamma}$$

where

- $\dot{V}$ - volumetric flow rate
- k_{Re} - fluid mechanic calibration factor
- A - cross-sectional pipe area
- k_a - acoustic calibration factor
- Δt - transit time difference
- t_γ - average of transit times in the fluid

Calculation of sound speed and fluid temperature

The fluid sound speed can be determined from the transit times in the fluid and the geometry of the measuring point. The sound speed is fluid specific and temperature dependent. This curve is stored in the fluid data set for water. Thus, the fluid temperature can be determined from the sound speed.

Number of sound paths

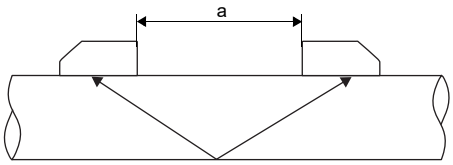
The number of sound paths is the number of transits of the ultrasonic signal through the fluid in the pipe. Depending on the number of sound paths, the following methods of installation exist:

- **reflection arrangement**
  The number of sound paths is even. The transducers are mounted on the same side of the pipe. Correct positioning of the transducers is easy.
- **diagonal arrangement**
  The number of sound paths is odd. The transducers are mounted on opposite sides of the pipe. In case of high signal attenuation by the fluid or pipe, diagonal arrangement with 1 sound path is used.

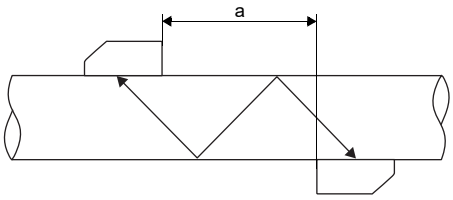
The preferred method of installation depends on the application. While increasing the number of sound paths increases the accuracy of the measurement, signal attenuation increases as well. The optimum number of sound paths for the parameters of the application will be determined automatically by the transmitter.

As the transducers can be mounted with the transducer mounting fixture in reflection arrangement or diagonal arrangement, the number of sound paths can be adjusted optimally for the application.

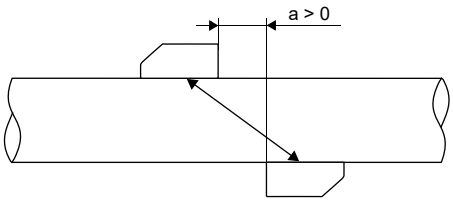
Reflection arrangement, number of sound paths: 2



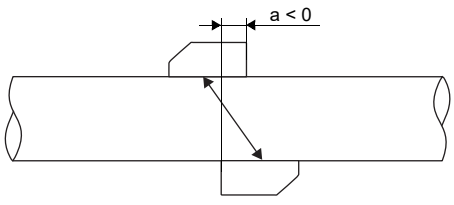
Diagonal arrangement, number of sound paths: 3



Diagonal arrangement, number of sound paths: 1



Diagonal arrangement, number of sound paths: 1, negative transducer distance



a - transducer distance

Transmitter

Technical data

		FLUXUS F532WD (analog outputs)	FLUXUS F532WD (process interface)
			
design		field device with 1 measuring channel	
application		flow measurement at water pipes	
measurement			
measurement principle		transit time difference correlation principle, automatic NoiseTrek selection for measurements with high gaseous or solid content	
flow velocity	m/s	0.01...25	
repeatability		0.15 % MV ±0.005 m/s	
fluid		water	
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 ±0.005 m/s	
measurement uncertainty at the measuring point[2]		±1 % MV ±0.005 m/s	
measurement uncertainty (temperature from sound speed)			
measurement uncertainty at the measuring point[2]		±0.2 K (fluid temperature: 0...30 °C, inner pipe diameter: min. 200 mm)	
transmitter			
power supply		• 90...250 V/50...60 Hz or • 11...32 V DC	
power consumption	W	< 10	
number of measuring channels		1	
damping	s	0...100 (adjustable)	
measuring cycle	Hz	100...1000	
response time	s	1	
housing material		aluminum, powder coated	
degree of protection		IP66	
dimensions	mm	see dimensional drawing	
weight	kg	2.25	
fixation		wall mounting, optional: 2" pipe mounting	
ambient temperature	°C	-20...+60	
display		128 x 64 pixels, backlight	
menu language		English, German, French, Spanish, Dutch, Russian, Polish, Turkish, Italian, Chinese	
measuring functions			
physical quantities		volumetric flow rate, mass flow rate, flow velocity	
totaliser		volume, mass	
diagnostic functions		sound speed, signal amplitude, SNR, SCNR, standard deviation of amplitudes and transit times	
communication interfaces			
service interfaces		measured value transmission, parametrisation of the transmitter: • USB • LAN	measured value transmission, parametrisation of the transmitter: • USB • LAN
process interfaces		-	max. 1 option: • Modbus RTU • BACnet MS/TP • M-Bus • HART • Modbus TCP • BACnet IP
accessories			
data transmission kit		USB cable	
software		• FluxDiagReader: reading of measured values and parameters, graphical representation • FluxDiag (optional): reading of measurement data, graphical representation, report generation, parametrisation of the transmitter	
data logger			
loggable values		all physical quantities and totalised physical quantities	
capacity		max. 800 000 measured values	

[1] with aperture calibration of the transducers

[2] for transit time difference principle and reference conditions

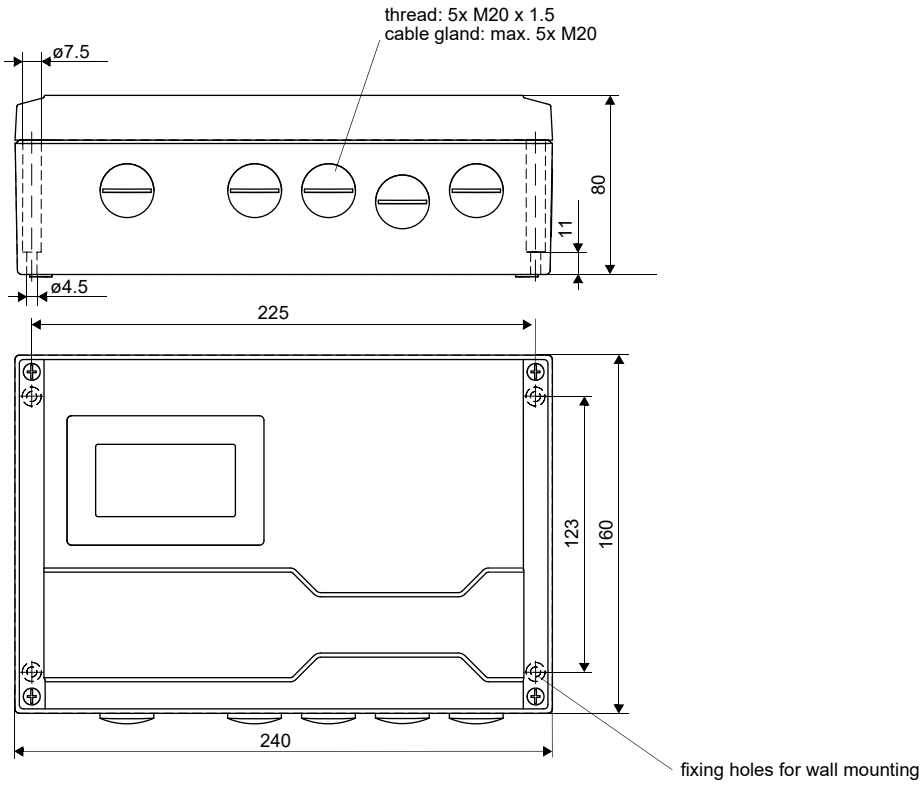
		FLUXUS F532WD (analog outputs)	FLUXUS F532WD (process interface)
outputs			
		The outputs are galvanically isolated from the transmitter.	
• switchable current output			
		configurable according to NAMUR NE43 All switchable current outputs are jointly switched to active or passive.	
number		1, optional: 2	optional: 1 (HART)
range	mA	4...20 (3.2...24)	4...20 (3.2...24)
accuracy		0.04 % MV ±3 µA	0.04 % MV ±3 µA
active output		R_{ext} < 530 Ω	R_{ext} < 530 Ω
passive output		U_{ext} = 9...30 V, depending on R_{ext} (R_{ext} < 458 Ω at 20 V)	U_{ext} = 9...30 V, depending on R_{ext} (R_{ext} < 458 Ω at 20 V)
current output in HART mode			
• range	mA	-	4...20 (3.5...22)
• active output		-	R_{ext} = 250...530 Ω
• passive output		-	U_{ext} = 9...30 V DC
• digital output			
number		2, optional: 4	-
functions		• frequency output • binary output • pulse output	-
operating parameters		U_{ext} = (8.2 ±0.1) V DC	-
frequency output			
• range	kHz	0...10	-
binary output			
• binary output as alarm output		limit, change of flow direction or error	-
pulse output			
• pulse value	units	0.01...1000	-
• pulse width	ms	0.05...1000	-

[1] with aperture calibration of the transducers

[2] for transit time difference principle and reference conditions

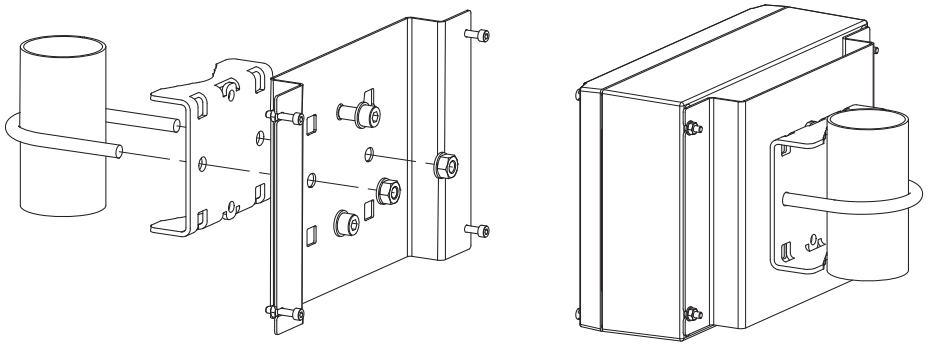
Dimensions

***532**



in mm

2" pipe mounting kit (optional)

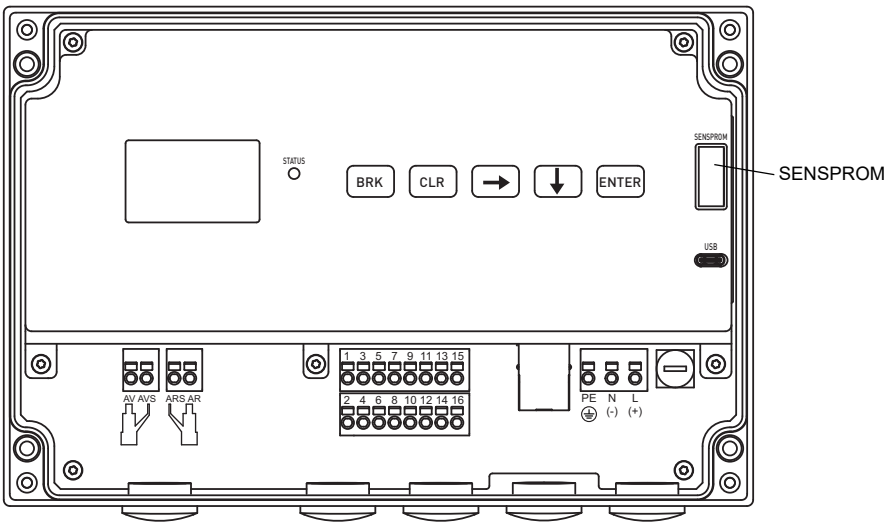
***532** 	order code: ACC-PE-*532-/PMK4

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: -20...+60 °C

Terminal assignment

***532**



power supply[1]			
terminal	**connection (AC)**	**terminal**	**connection (DC)**
PE	earth	PE	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, 2]	
terminal	**connection**
5+, 6- 13+, 14-	passive current output
5-, 6+ 13-, 14+	active current output
1+, 2- 3+, 4- 9+, 10- 11+, 12-	digital output
15+, 16-	passive current output/HART
15-, 16+	active current output/HART

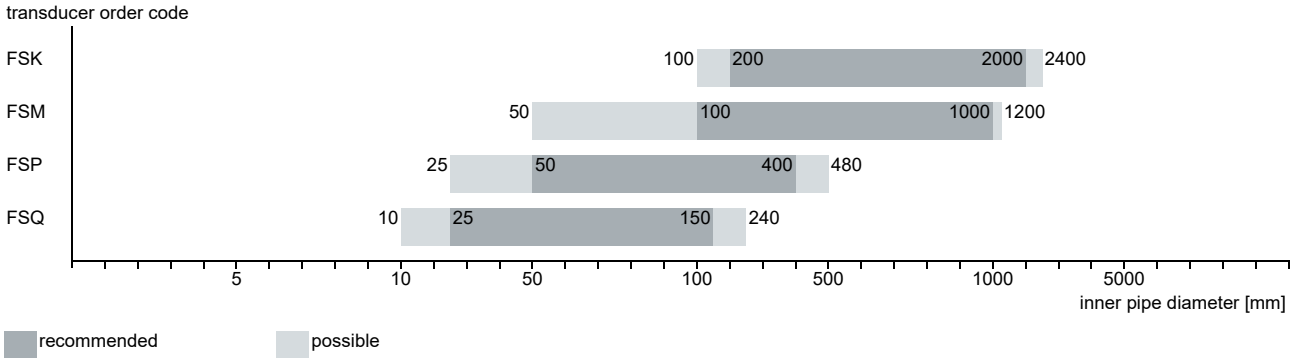
communication interfaces		
terminal	**connection**	**communication interface**
15	signal +	• Modbus RTU[1] • BACnet MS/TP[1] • M-Bus[1]
16	signal -	
USB	type C Hi-Speed USB 2.0 Device	service (FluxDiag/FluxDiagReader)
LAN	RJ45 10/100 Mbps Ethernet	• service (FluxDiag/FluxDiagReader) • Profibus PA • FF H1 • Modbus TCP • BACnet IP

[1] cable (by customer): e.g. flexible wires, with insulated wire ferrules, wire cross-section: 0.25...2.5 mm^2

[2] The number, type and terminal assignment are customised.

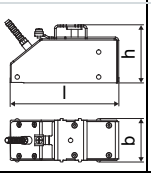
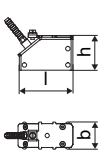
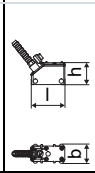
Transducers

Transducer selection

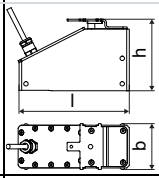
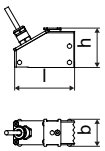


Technical data

Shear wave transducers

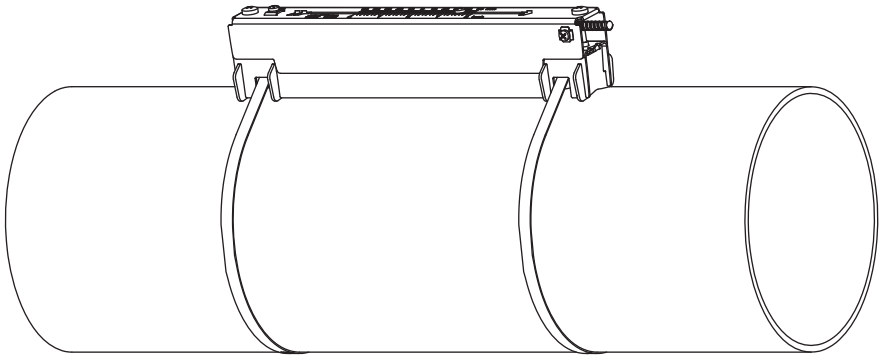
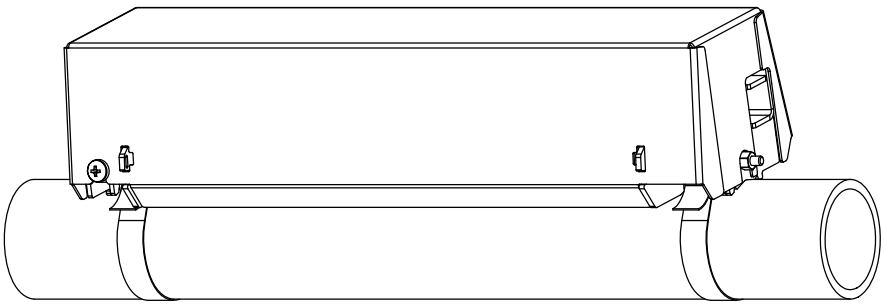
order code		FSK-N**T1	FSM-N**T1	FSP-N**T1	FSQ-N**T1
technical type		CDK1N53	CDM2N53	CDP2N53	CDQ2N53
transducer frequency	MHz	0.5	1	2	4
inner pipe diameter d					
min. extended	mm	100	50	25	10
min. recommended	mm	200	100	50	25
max. recommended	mm	2000	1000	400	150
max. extended	mm	2400	1200	480	240
pipe wall thickness					
min.	mm	5	2.5	1.2	0.6
material					
housing		PEEK with stainless steel cover 316L (1.4404)			
contact surface		PEEK			
degree of protection		IP67			
transducer cable					
type		1699			
length	m	5	4		3
dimensions					
length l	mm	126.5	64		40
width b	mm	51	32		22
height h	mm	67.5	40.5		25.5
dimensional drawing					
weight (without cable)	kg	0.36	0.066		0.016
pipe surface temperature	°C	-40...+130			
ambient temperature	°C	-40...+130			
temperature compensation		x			

Shear wave transducers (IP68)

order code		FSK-N**T1/IP68	FSM-N**T1/IP68	FSP-N**T1/IP68
technical type		CDK1LI8	CDM2LI8	CDP2LI8
transducer frequency	MHz	0.5	1	2
inner pipe diameter d				
min. extended	mm	100	50	25
min. recommended	mm	200	100	50
max. recommended	mm	2000	1000	400
max. extended	mm	2400	1200	480
pipe wall thickness				
min.	mm	5	2.5	1.2
material				
housing		PEEK with stainless steel cover 316Ti (1.4571)		
contact surface		PEEK		
degree of protection		IP68[1]		
transducer cable				
type		2550		
length	m	12		
dimensions				
length l	mm	130	72	
width b	mm	54	32	
height h	mm	83.5	46	
dimensional drawing				
weight (without cable)	kg	0.43	0.085	
pipe surface temperature	°C	-40...+100		
ambient temperature	°C	-40...+100		
temperature compensation		x		

[1] test conditions: 3 months/2 bar (20 m)/20 °C

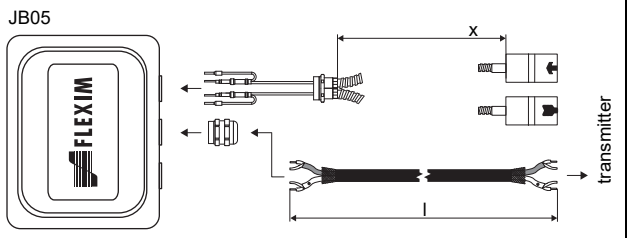
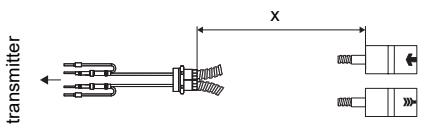
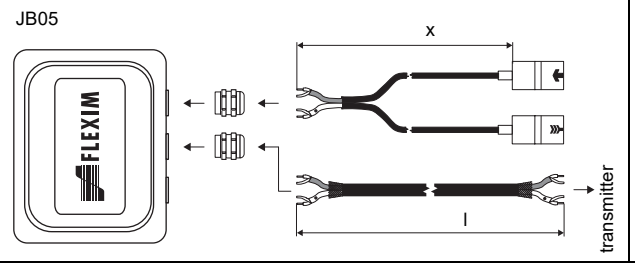
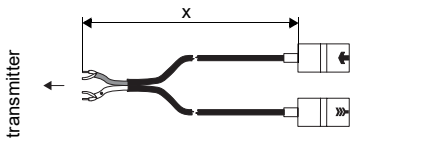
Transducer mounting fixture

Variofix L 	material: stainless steel 316Ti (1.4571), 316L (1.4404), 17-7PH (1.4568) inner length: **VLK**: 348 mm, option IP68: 368 mm **VLM**: 234 mm **VLQ**: 176 mm dimensions: **VLK**: 423 x 90 x 93 mm option IP68: 443 x 94 x 105 mm **VLM**: 309 x 57 x 63 mm **VLQ**: 247 x 43 x 47 mm
Variofix C (VC) 	material: stainless steel 316Ti (1.4571) inner length: **VCK-*S**: 350 mm **VCM**: 400 mm **VCQ**: 250 mm dimensions: **VCK-*S**: 410 x 126 x 125 mm **VCM**: 460 x 96 x 82 mm **VCQ**: 310 x 85 x 71 mm

Coupling materials for transducers

type	**ambient temperature** °C
coupling foil type VT	-10...+200

Connection systems

connection system T1		
connection with extension cable	direct connection	transducers technical type
		*****53
		****LI*

Cable

transducer cable			
type		**1699**	**2550**
weight	kg/m	0.094	0.035
ambient temperature	°C	-55...+200	-40...+100
cable jacket			
material		PTFE	PUR
outer diameter	mm	2.9	5.2 ±0.2
thickness	mm	0.3	0.9
colour		brown	grey
shield		x	x
sheath			
material		stainless steel 316Ti (1.4571)	-
outer diameter	mm	8	-

extension cable		
type		**2615**
order code		ACC-PE- GNNN-/EXEXXXX
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

XXXX - cable length in m

Cable length

transducer frequency		K		M, P		Q	
transducers technical type		x	l	x	l	x	l
*D***5*	m	5	≤ 300	4	≤ 300	3	≤ 90
****LI*	m	12	≤ 300	12	≤ 300	-	-

x - transducer cable length

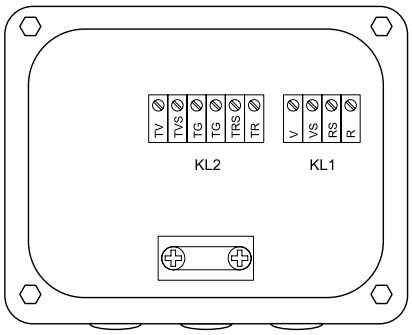
l - max. length of extension cable (depending on the application)

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	°C	-40...+80

Connection



Transducers

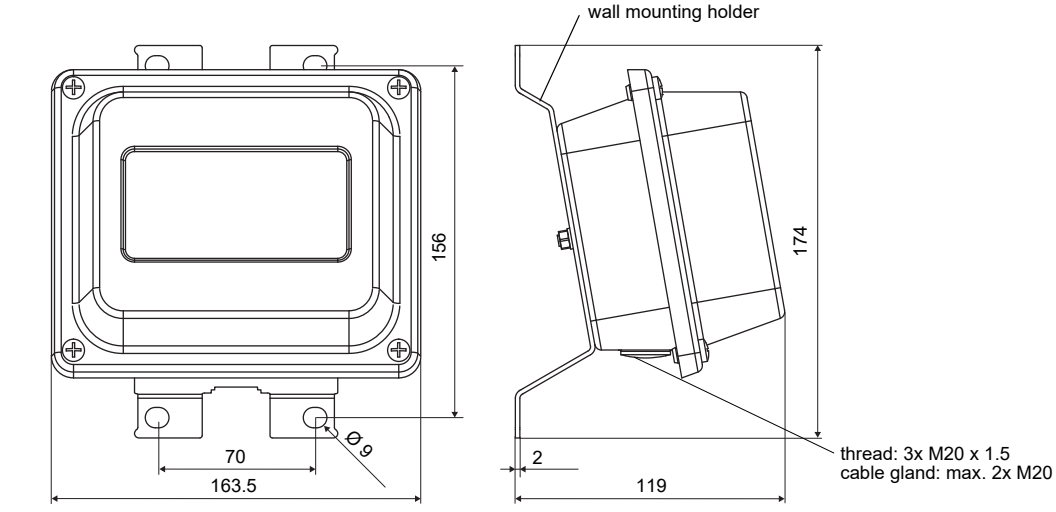
terminal strip	terminal	connection	transducer
KL1	V	signal	
	VS	internal shield	
	RS	internal shield	
	R	signal	

Extension cable

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

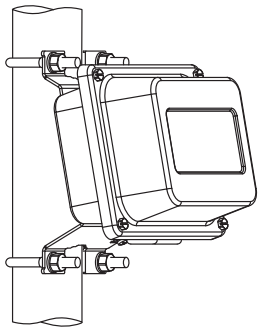
Dimensions

JB0*, JBP*



in mm

2" pipe mounting kit

JB** 	order code: ACC-PE-GNNN-/JBPMK4

Flexible Industriemesstechnik GmbH

FLEXIM Flexible Industriemesstechnik GmbH
Boxberger Str. 4 · 12681 Berlin · Germany

Berlin, 20/02/2023

MANUFACTURER´S AUTHORISATION

To whom it may concern,

We, **FLEXIM Flexible Indstriemesstechnik GmbH,**
a company under the law of Germany, hereby authorise the company:

Zagorski ChM LTD
17 Avgusta Trayana str.
6004 Stara Zagora
Bulgaria
Tel: +359 42 645 118
Fax: +359 42 628 914
E-mail: zagorski@mail.orbitel.bg

to act as FLEXIM sales agent for our flow and analyser products in the territory of:

The Republic of Bulgaria

Zagorski ChM is responsible for sales, after sales service as well as the bidding projects held in this territory. Our distributor is authorised to quote and negotiate in the territory for the specified product range.

This document is valid for 2023 and is a subject of annual renewal.

MAKSYM CICHON
REGIONAL SALES MANAGER EUROPE

ПРЕВОД
„ФЛЕКСИМ” ООД

Берлин, 20/02/2023

УПЪЛНОМОЩАВАНЕ ОТ ПРОИЗВОДИТЕЛ

До когото може да касае,

Ние, **ФЛЕКСИМ Гъвкава промишлена измервателна техника ООД,**
фирма според законодателството на Германия, с настоящето упълномощаваме фирма:

„Загорски ХМ” ЕООД
6000 гр. Стара Загора
ул. „Августа Траяна” № 17б
България
тел: +359 42 645 118
факс: +359 42 628 914
електронна поща: zagorski@mail.orbitel.bg

да действа като търговски представител на „ФЛЕКСИМ” за нашите продукти за разход и анализатори на територията на:

Република България

„Загорски ХМ” ЕООД ще се грижи за продажбите, следгаранционния сервиз, както и за участието в проекти за търгове, провеждани на тази територия.
Нашият дистрибутор е упълномощен да оферира и да преговаря за горепосочената продуктова гама на територията.

Този документ е валиден за 2023 г. и подлежи на ежегодно подновяване.

Подпис
(не се чете)
Максим Шикон
Регионален търговски мениджър за Европа