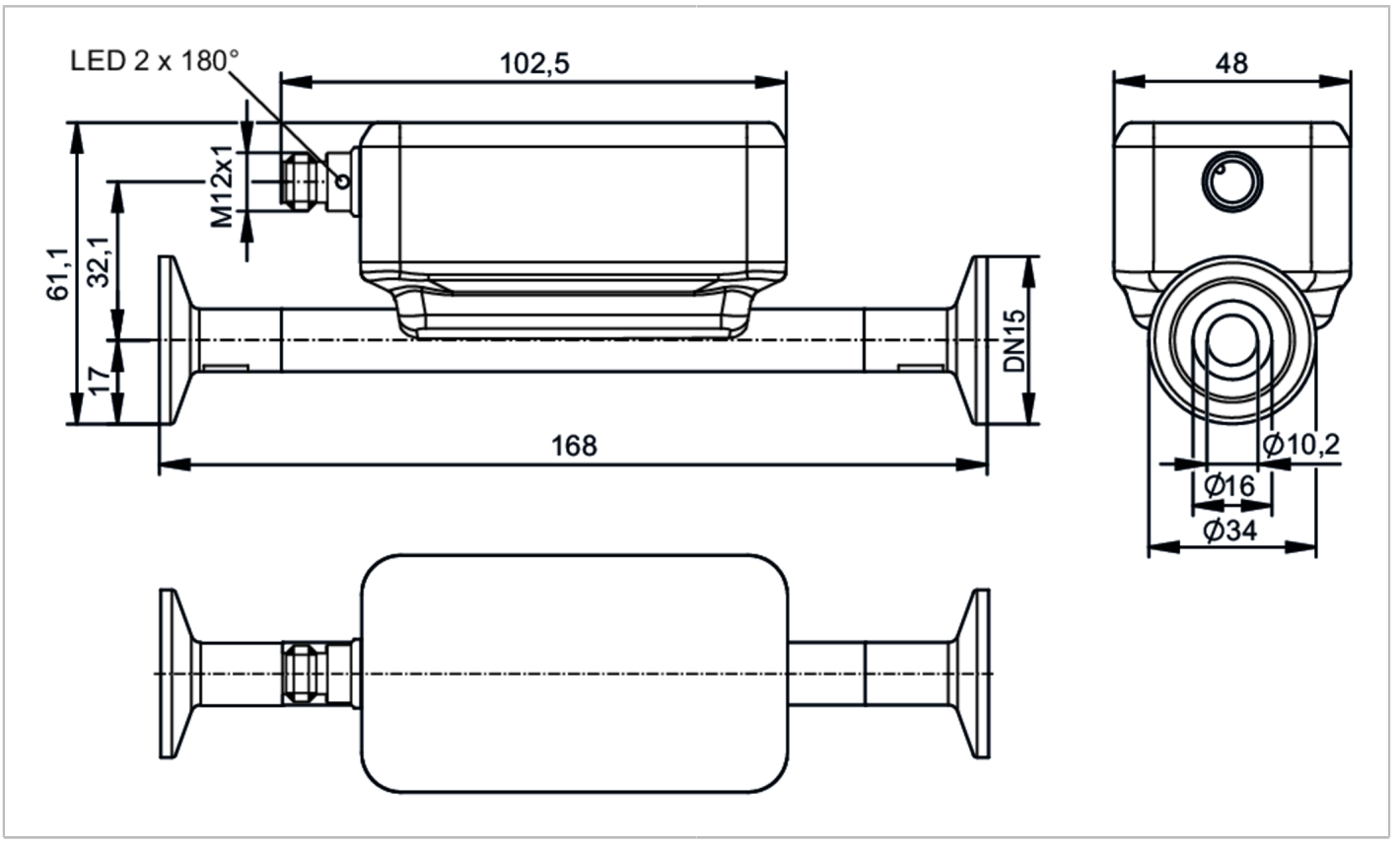
SUH120

Ultrasonic flow meter

SUC15XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics					
Measuring range		1...65 l/min	0.06...3.9 m³/h	16...1030 gph	0.26...17.17 gpm
Nominal diameter		DN15 (1/2“)			
Process connection		Clamp DN15 DIN 32676 series A			
Application					
Special feature		Gold-plated contacts			
Application		food and beverage industry			
Media		ultra-pure water; water; hydrous media			
Note on media		hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature	[°C]	-40...125; (< 1 h: 150)			
Min. bursting pressure		40 bar		4 MPa	
Pressure rating		16 bar		1.6 MPa	
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			

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Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	1...65 l/min	0.06...3.9 m³/h	16...1030 gph	0.26...17.17 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min, °C			
Set point SP	1.4...65 l/min	0.082...3.9 m³/h	22...1030 gph	0.36...17.17 gpm
Reset point rP	1...64.7 l/min	0.062...3.88 m³/h	16...1025 gph	0.27...17.08 gpm
Analogue start point ASP	-65...52 l/min	-3.9...3.12 m³/h	-1030...824 gph	-17.17...13.74 gpm
Analogue end point AEP	-52...65 l/min	-3.12...3.9 m³/h	-824...1030 gph	-13.74...17.17 gpm
Low flow cut-off LFC	1...3.2 l/min	0.06...0.195 m³/h	16...52 gph	0.26...0.86 gpm
Frequency end point, FEP	13...65 l/min	0.782...3.9 m³/h	207...1030 gph	3.44...17.17 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l / 0.026...26414563.515 gal			

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Temperature monitoring			
Measuring range		-40...125 °C	-40...257 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...125 °C	-38.9...257 °F
Reset point rP		-40...124.4 °C	-40...255.9 °F
Analogue start point		-40...92 °C	-40...197.6 °F
Analogue end point		-7...125 °C	19.4...257 °F
Frequency start point, FSP		-40...92 °C	-40...197.6 °F
Frequency end point, FEP		-7...125 °C	19.4...257 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.3; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

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IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1907
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I038
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	523.1	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	168 x 48 x 61.1	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN15 (1/2“)	
Process connection		Clamp DN15 DIN 32676 series A	
Process connection suitable for pipe standard		DN15 / Ø 19 mm x 1,5 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

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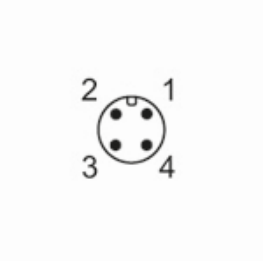
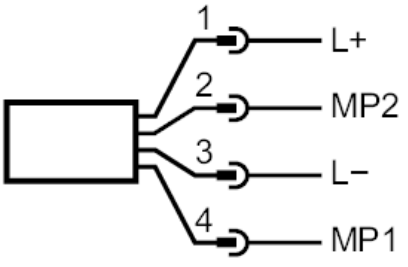
Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



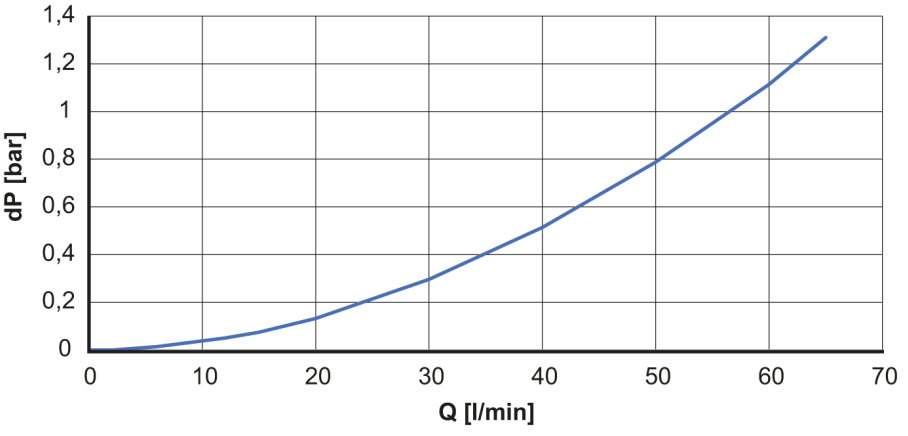
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

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Ultrasonic flow meter

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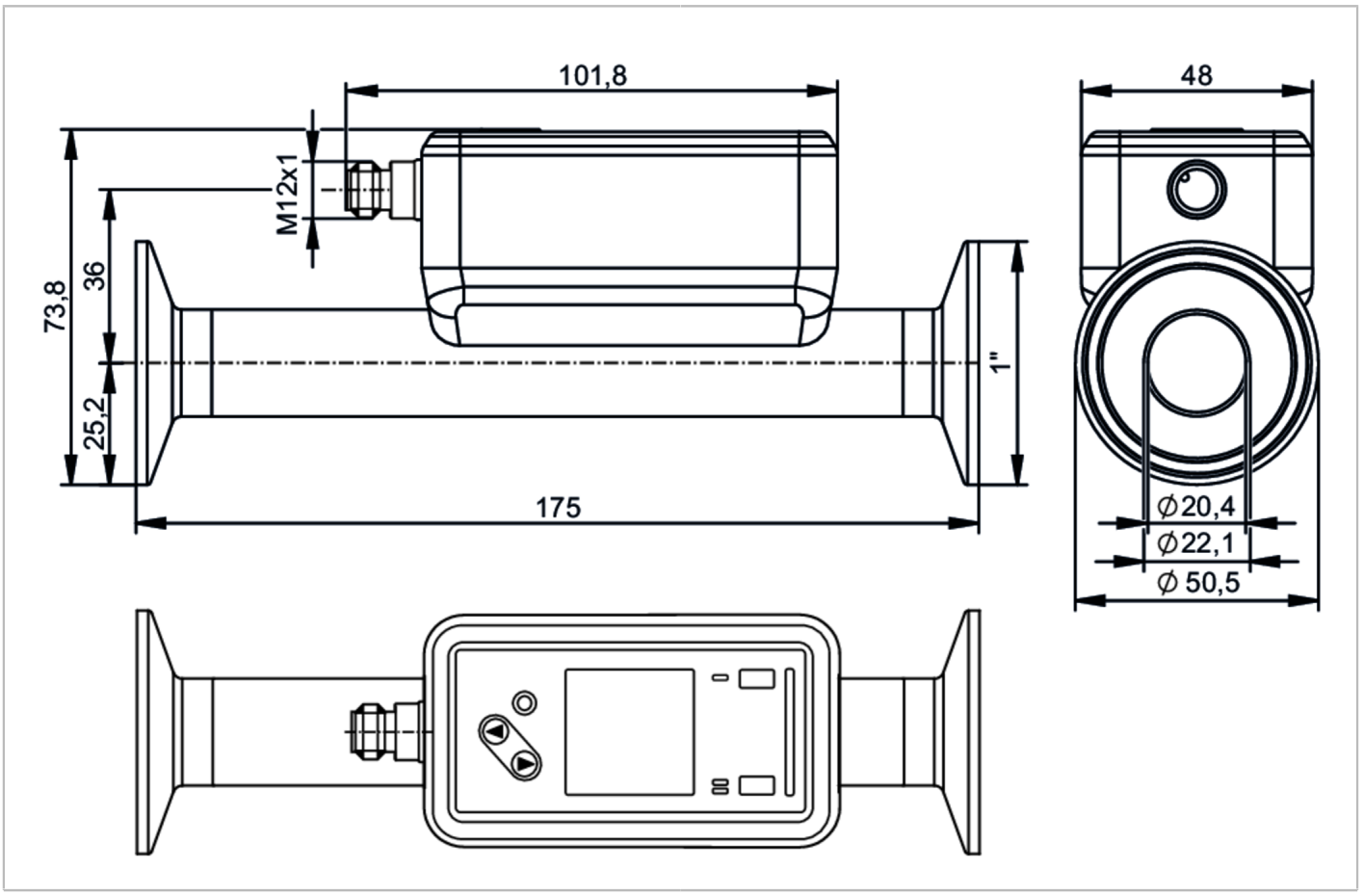

Product characteristics				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Nominal diameter	DN25 (1“)			
Process connection	Clamp 1" DIN 32676 series C (ASME BPE)			
Application				
Special feature	Gold-plated contacts			
Media	ultra-pure water; water; hydrous media; edible oils			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
	edible oils: palm oil, soy oil, rapeseed oil, sunflower oil, peanut oil, olive oil and others			
Medium temperature	-20...100 °C		-4...212 °F	
Min. bursting pressure	75 bar		7.5 MPa	
Pressure rating	16 bar		1.6 MPa	
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	5			
Measuring principle	ultrasonic			

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Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Min. load resistance [Ω]	2000			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Display range	-288...288 l/min	-17.28...17.28 m³/h	-4565...4565 gph	-76.08...76.08 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.02 gpm
Set point SP	2.3...240 l/min	0.139...14.4 m³/h	37...3804 gph	0.61...63.4 gpm
Reset point rP	1.1...238.8 l/min	0.064...14.325 m³/h	17...3784 gph	0.28...63.07 gpm
Analogue start point ASP	-240...192 l/min	-14.4...11.522 m³/h	-3804...3044 gph	-63.4...50.73 gpm
Analogue end point AEP	-191.9...240 l/min	-11.511...14.4 m³/h	-3041...3804 gph	-50.68...63.4 gpm
Low flow cut-off LFC	1...12 l/min	0.06...0.72 m³/h	16...190 gph	0.26...3.17 gpm
Frequency end point, FEP	48.1...240 l/min	2.889...14.4 m³/h	763...3804 gph	12.72...63.4 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.02...99990000 l; 0.0053...26414563.515 gal			

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Ultrasonic flow meter

SUC25IJBFRKG/US

Temperature monitoring			
Measuring range		-20...100 °C	-4...212 °F
Display range		-44...124 °C	-47.2...255.2 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-19.6...100 °C	-3.2...212 °F
Reset point rP		-20...99.6 °C	-4...211.2 °F
Analogue start point		-20...76 °C	-4...168.8 °F
Analogue end point		4...100 °C	39.2...212 °F
Frequency start point, FSP		-20...76 °C	4...168.8 °F
Frequency end point, FEP		4...100 °C	39.2...212 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Flow monitoring			
Accuracy (in the measuring range)		edible oils	± (5,0 % MW + 1,0 % MEW)
		water	± (1,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.25; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

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IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1751
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69K	
Tests / approvals			
EMC		DIN 61326-1:2021	
CPA approval		model number	003US
		accuracy class	1,5
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	160	
UL approval		UL approval no.	I034
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	639.4	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	175 x 50.4 x 73.8	
Materials		housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: PBT	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4404)	
Nominal diameter		DN25 (1“)	
Process connection		Clamp 1" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		1" / Ø 25,4 mm x 1,65 mm (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.8 µm (32 µin)	
Displays / operating elements			
Display			colour display 1,44", 128 x 128 pixels
		Switching function	2 x LED, yellow
		diagnosis	1 x LED, three-colour
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the accuracy indications are adhered to over the entire application area	
Pack quantity		1 pcs.	

SUH201

Ultrasonic flow meter

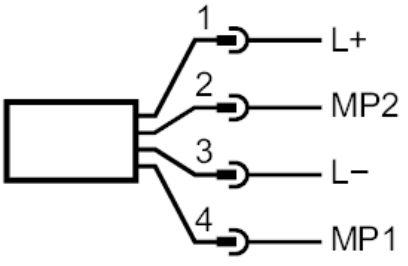
SUC25IJBFRKG/US

Electrical connection

Connector: 1 x M12; Contacts: gold-plated

Electrical connection - plug

Connection

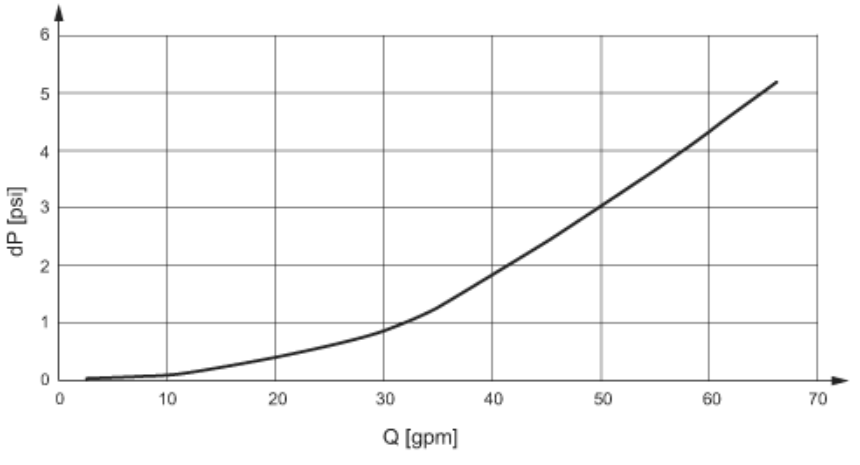


1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs

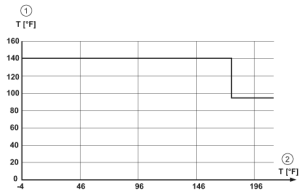
Note on pressure loss



SUH201

Ultrasonic flow meter

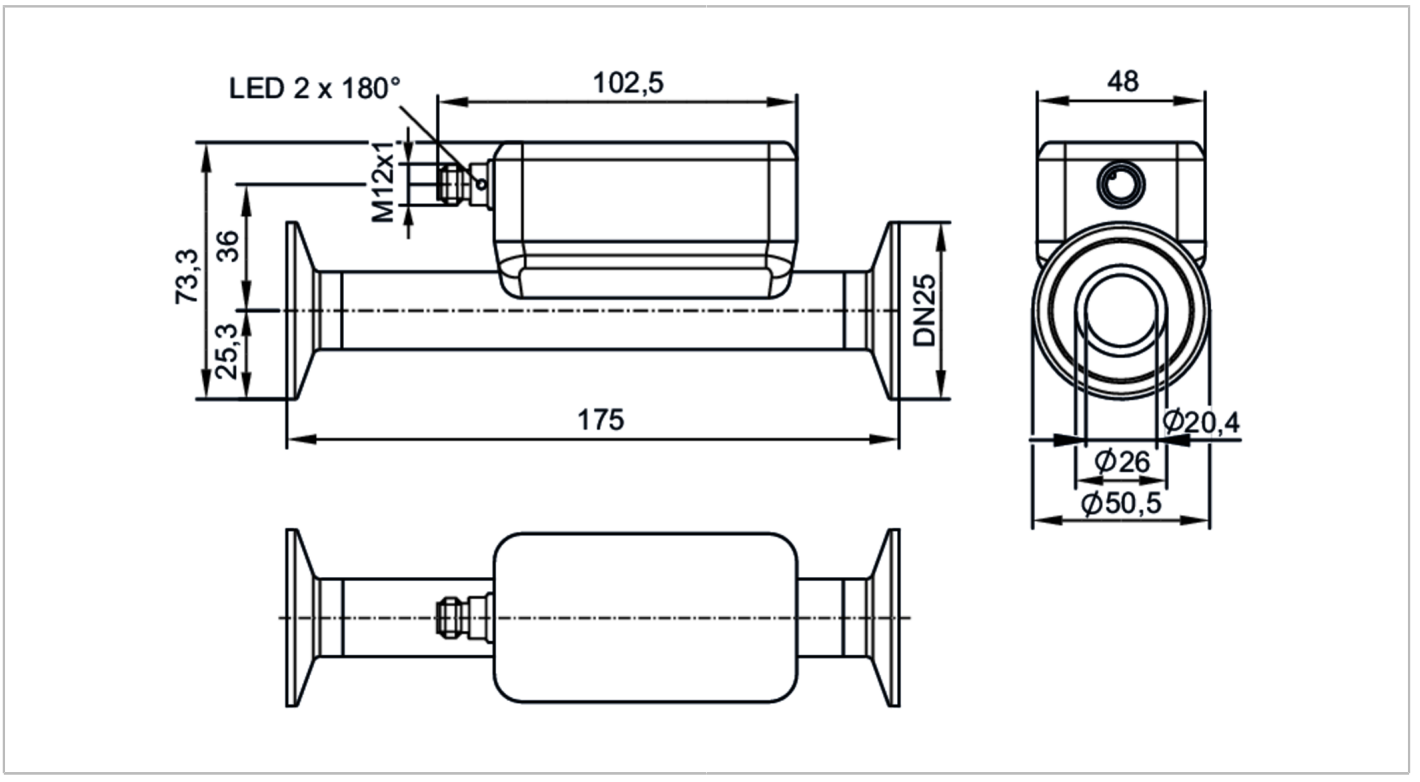
SUC25IJBFRKG/US

derating ambient temperature	 1 Ambient temperature 2 Medium temperature

SUH220

Ultrasonic flow meter

SUC25XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Nominal diameter	DN25 (1“)			
Process connection	Clamp DN25 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media; edible oils			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value edible oils: palm oil, soy oil, rapeseed oil, sunflower oil, peanut oil, olive oil and others			
Medium temperature [°C]	-40...130; (< 1 h: 150)			
Min. bursting pressure	40 bar	4 MPa		
Pressure rating	16 bar	1.6 MPa		
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	5			
Measuring principle	ultrasonic			

SUH220

Ultrasonic flow meter

SUC25XJBFRKG/US

Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min, °C			
Set point SP	2.3...240 l/min	0.139...14.4 m³/h	37...3804 gph	0.61...63.4 gpm
Reset point rP	1.1...238.8 l/min	0.064...14.325 m³/h	16...3784 gph	0.28...63.07 gpm
Analogue start point ASP	-240...192 l/min	-14.4...11.522 m³/h	-3804...3044 gph	-63.4...50.73 gpm
Analogue end point AEP	-191.9...240 l/min	-11.511...14.4 m³/h	-3041...3804 gph	-50.68...63.4 gpm
Low flow cut-off LFC	1...12 l/min	0.06...0.72 m³/h	16...190 gph	0.26...3.17 gpm
Frequency end point, FEP	48.1...240 l/min	2.889...14.4 m³/h	763...3804 gph	12.72...63.4 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.02...99990000 l; 0.0053…26414563.515 gal			

SUH220

Ultrasonic flow meter

SUC25XJBFRKG/US

Temperature monitoring			
Measuring range		-40...130 °C	-40...266 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...130 °C	-38.9...266 °F
Reset point rP		-40...129.4 °C	-40...264.9 °F
Analogue start point		-40...96 °C	-40...204.8 °F
Analogue end point		-6...130 °C	21.2...266 °F
Frequency start point, FSP		-40...96 °C	-40...204.8 °F
Frequency end point, FEP		-6...130 °C	21.2...266 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		edible oils	± (5,0 % MW + 1,0 % MEW)
		water	± (1,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.25; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH220

Ultrasonic flow meter

SUC25XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1908
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	608.3	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	175 x 50.5 x 73.3	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN25 (1“)	
Process connection		Clamp DN25 DIN 32676 series A	
Process connection suitable for pipe standard		DN25 / Ø 29 mm x 1,5 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

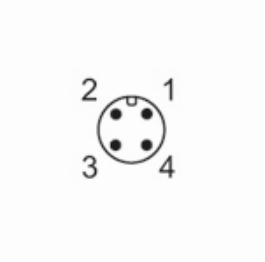
SUH220

Ultrasonic flow meter

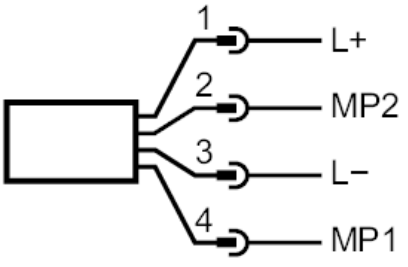
SUC25XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



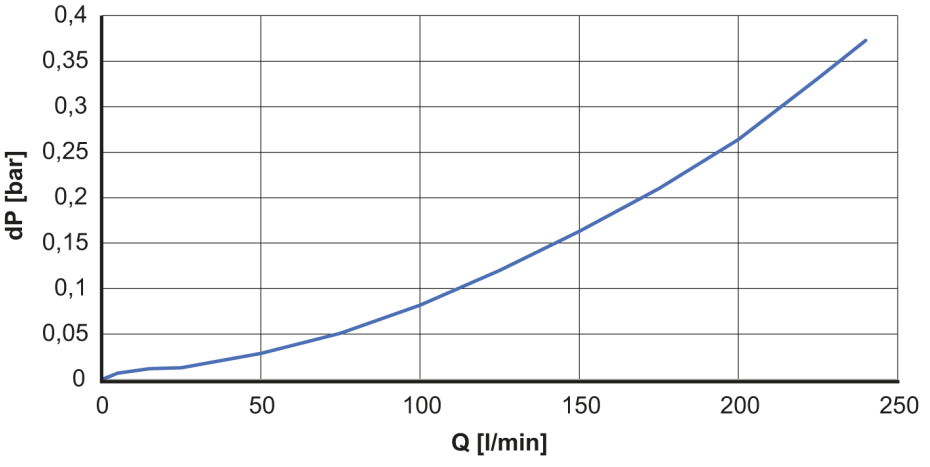
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



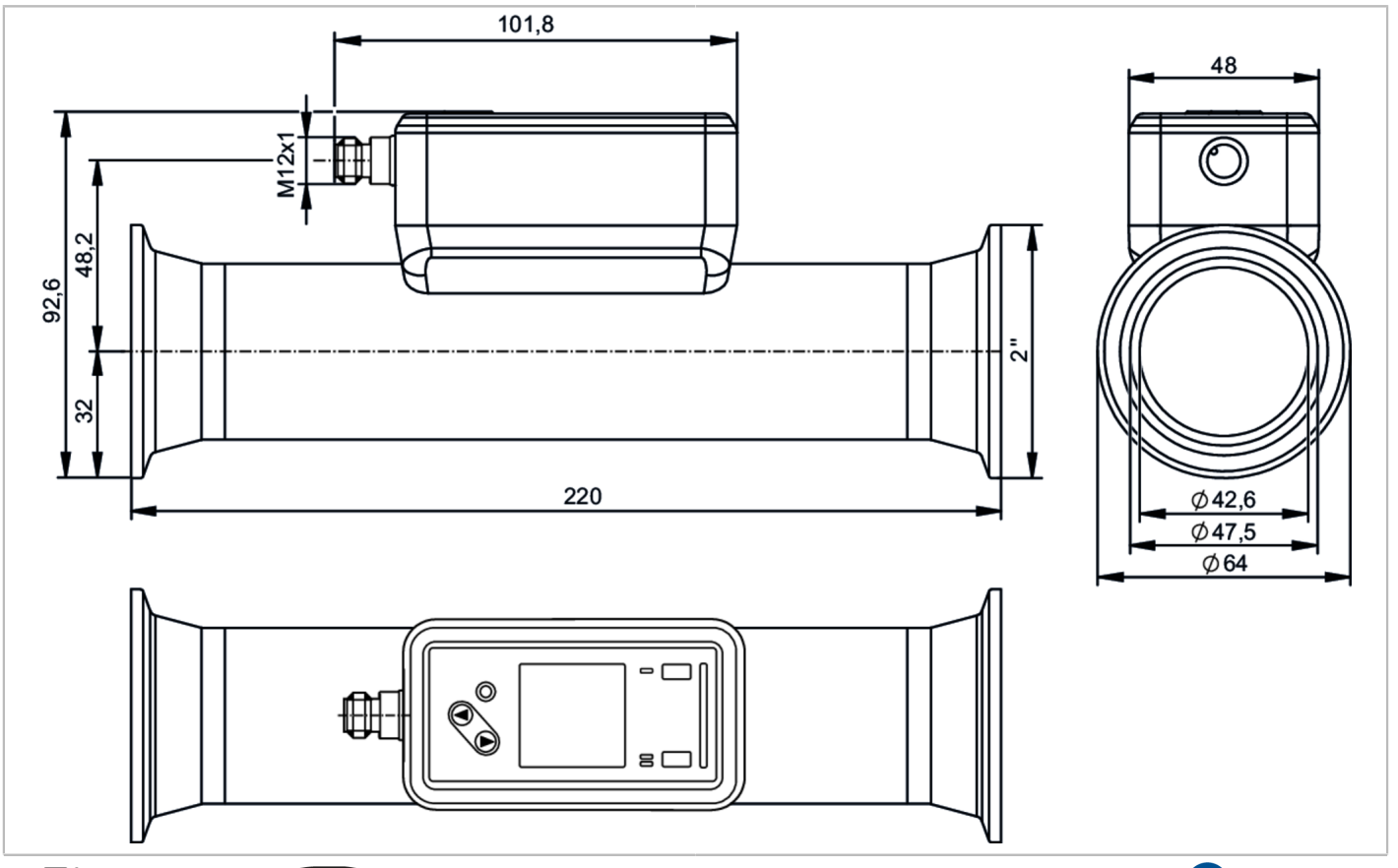
dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

SUH401

Ultrasonic flow meter

SUC50IJBFRKG/US



ACS CE PA c UL us LISTED EC 1935/2004 FCM FDA IO-Link KTW/W270 NSF Reg31

Product characteristics					
Measuring range		5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Nominal diameter		DN50 (2“)			
Process connection		Clamp 2" DIN 32676 series C (ASME BPE)			
Application					
Special feature		Gold-plated contacts			
Media		ultra-pure water; water; hydrous media; edible oils			
Note on media		hydrous media: for media with >10 % additives, the repeatability is the only available value edible oils: palm oil, soy oil, rapeseed oil, sunflower oil, peanut oil, olive oil and others			
Medium temperature		-20...100 °C	-4...212 °F		
Min. bursting pressure		50 bar	5 MPa		
Pressure rating		16 bar	1.6 MPa		
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			

SUH401

Ultrasonic flow meter

SUC50IJBFRKG/US

Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Min. load resistance [Ω]	2000			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Display range	-1200...1200 l/min	-72...72 m³/h	-19020...19020 gph	-317...317 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Set point SP	10.5...1000 l/min	0.63...60 m³/h	166...15850 gph	2.77...264.17 gpm
Reset point rP	5.3...994.8 l/min	0.318...59.688 m³/h	84...15768 gph	1.4...262.8 gpm
Analogue start point ASP	-1000...800 l/min	-60...48 m³/h	-15850...12680 gph	-264.17...211.34 gpm
Analogue end point AEP	-800...1000 l/min	-48...60 m³/h	-12680...15850 gph	-211.34...264.17 gpm
Low flow cut-off LFC	5...50 l/min	0.3...3 m³/h	79...793 gph	1.32...13.21 gpm
Frequency end point, FEP	200.6...1000 l/min	12.037...60 m³/h	3180...15850 gph	53...264.17 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l; 0.026...26414563.515 gal			

SUH401

Ultrasonic flow meter

SUC50IJBFRKG/US

Temperature monitoring			
Measuring range		-20...100 °C	-4...212 °F
Display range		-44...124 °C	-47.2...255.2 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-19.6...100 °C	-3.2...212 °F
Reset point rP		-20...99.6 °C	-4...211.2 °F
Analogue start point		-20...76 °C	-4...168.8 °F
Analogue end point		4...100 °C	39.2...212 °F
Frequency start point, FSP		-20...76 °C	4...168.8 °F
Frequency end point, FEP		4...100 °C	39.2...212 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Flow monitoring			
Accuracy (in the measuring range)		edible oils	± (5,0 % MW + 1,0 % MEW)
		water	± (1,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.25; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH401

Ultrasonic flow meter

SUC50IJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1753
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69K	
Tests / approvals			
EMC		DIN 61326-1:2021	
CPA approval		model number	003US
		accuracy class	1,5
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	160	
UL approval		UL approval no.	I033
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	936.1	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	220 x 63.9 x 92.6	
Materials		housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: PBT	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4404)	
Nominal diameter		DN50 (2“)	
Process connection		Clamp 2" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		2" / Ø 50,8 mm x 1,65 mm (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.8 µm (32 µin)	
Displays / operating elements			
Display			colour display 1,44", 128 x 128 pixels
		Switching function	2 x LED, yellow
		diagnosis	1 x LED, three-colour
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the accuracy indications are adhered to over the entire application area	
Pack quantity		1 pcs.	

SUH401

Ultrasonic flow meter

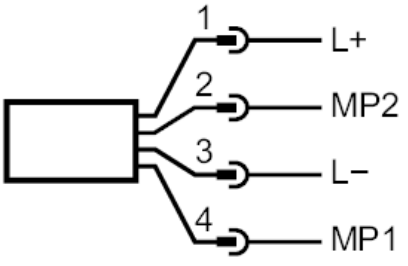
SUC50IJBFRKG/US

Electrical connection

Connector: 1 x M12; Contacts: gold-plated

Electrical connection - plug

Connection

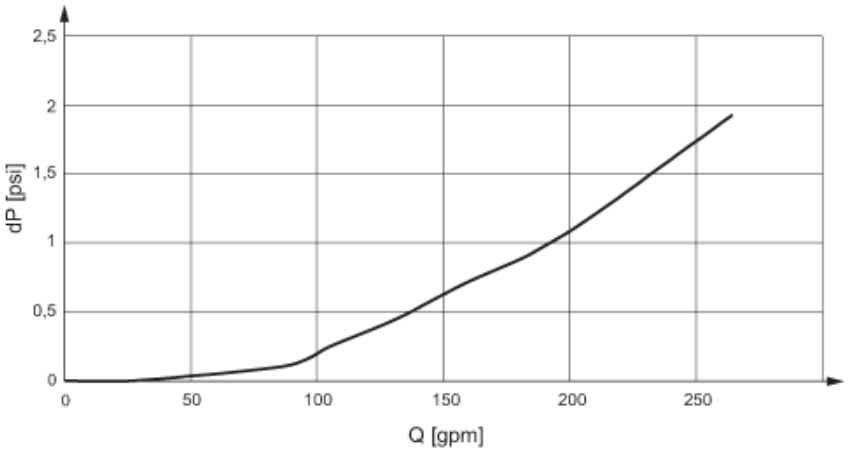


1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs

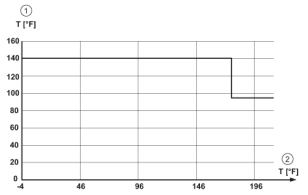
Note on pressure loss



SUH401

Ultrasonic flow meter

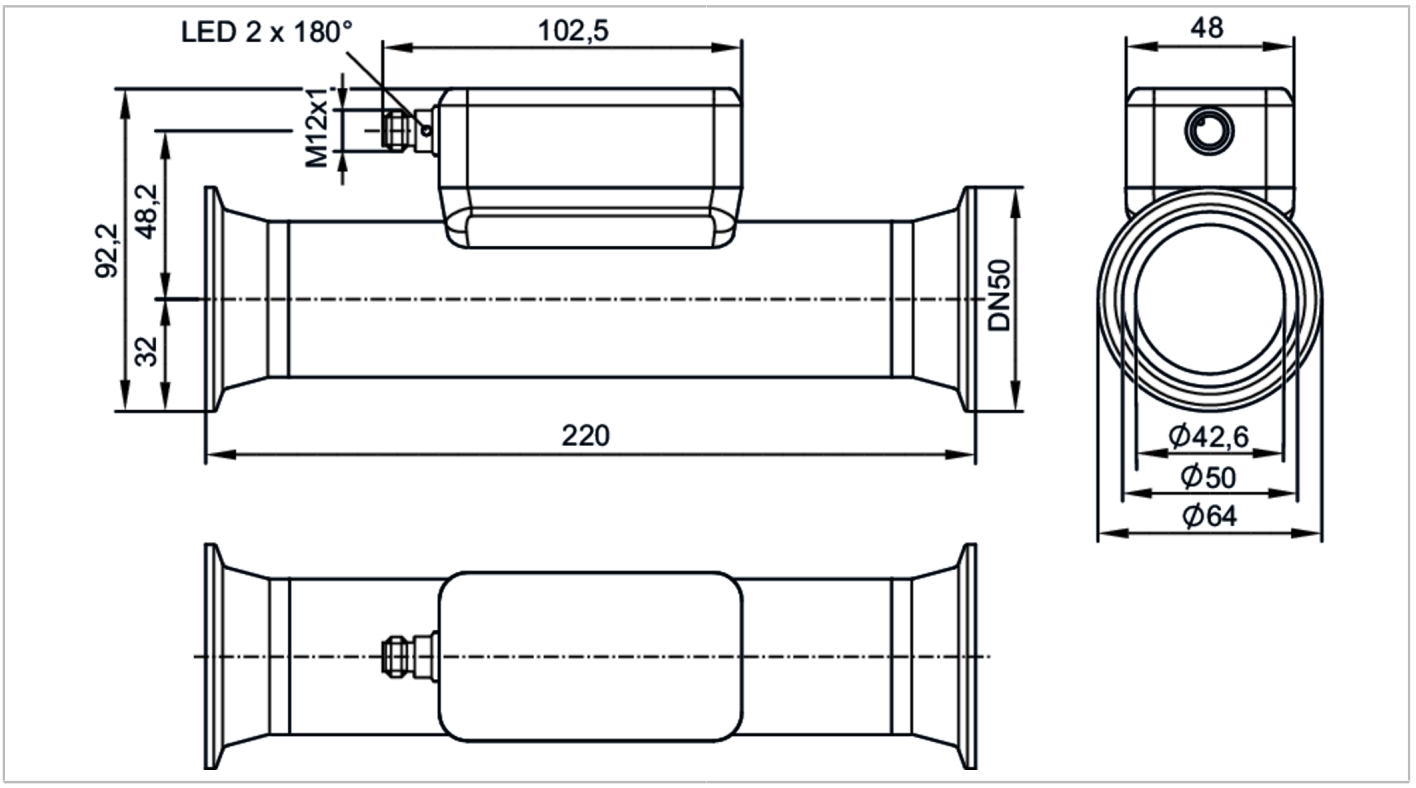
SUC50IJBFRKG/US

derating ambient temperature	 1 Ambient temperature 2 Medium temperature

SUH420

Ultrasonic flow meter

SUC50XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Nominal diameter	DN50 (2“)			
Process connection	Clamp DN50 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media; edible oils			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
	edible oils: palm oil, soy oil, rapeseed oil, sunflower oil, peanut oil, olive oil and others			
Medium temperature [°C]	-40...130; (< 1 h: 150)			
Min. bursting pressure	40 bar	4 MPa		
Pressure rating	16 bar	1.6 MPa		
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	5			
Measuring principle	ultrasonic			

SUH420

Ultrasonic flow meter

SUC50XJBFRKG/US

Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min, °C			
Set point SP	10.5...1000 l/min	0.63...60 m³/h	166...15850 gph	2.77...264.17 gpm
Reset point rP	5.3...994.8 l/min	0.318...59.688 m³/h	84...15768 gph	1.4...262.8 gpm
Analogue start point ASP	-1000...800 l/min	-60...48 m³/h	-15850...12680 gph	-264.17...211.34 gpm
Analogue end point AEP	-800...1000 l/min	-48...60 m³/h	-12680...15850 gph	-211.34...264.17 gpm
Low flow cut-off LFC	5...50 l/min	0.3...3 m³/h	79...793 gph	1.32...13.21 gpm
Frequency end point, FEP	200.6...1000 l/min	12.037...60 m³/h	3180...15850 gph	53...264.17 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l; 0.026…26414563.515 gal			

SUH420

Ultrasonic flow meter

SUC50XJBFRKG/US

Temperature monitoring			
Measuring range		-40...130 °C	-40...266 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...130 °C	-38.9...266 °F
Reset point rP		-40...129.4 °C	-40...264.9 °F
Analogue start point		-40...96 °C	-40...204.8 °F
Analogue end point		-6...130 °C	21.2...266 °F
Frequency start point, FSP		-40...96 °C	-40...204.8 °F
Frequency end point, FEP		-6...130 °C	21.2...266 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		edible oils	± (5,0 % MW + 1,0 % MEW)
		water	± (1,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.25; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH420

Ultrasonic flow meter

SUC50XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1911
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	921	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	220 x 64 x 92.2	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN50 (2“)	
Process connection		Clamp DN50 DIN 32676 series A	
Process connection suitable for pipe standard		DN50 / Ø 53 mm x 1,5 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

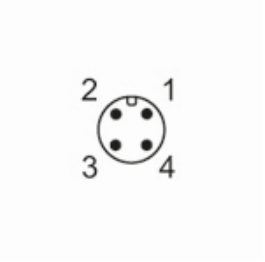
SUH420

Ultrasonic flow meter

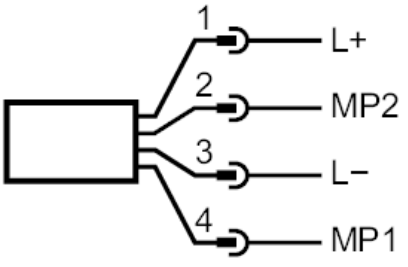
SUC50XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



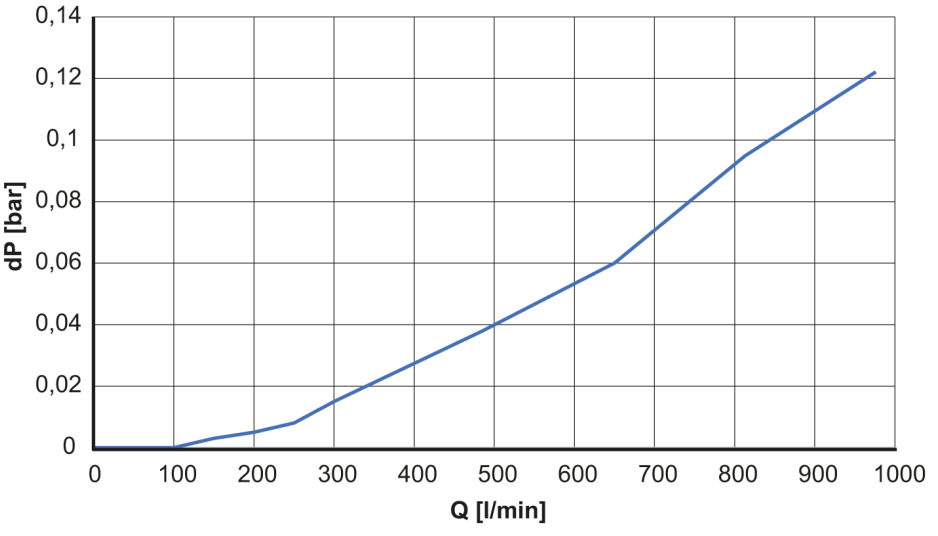
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



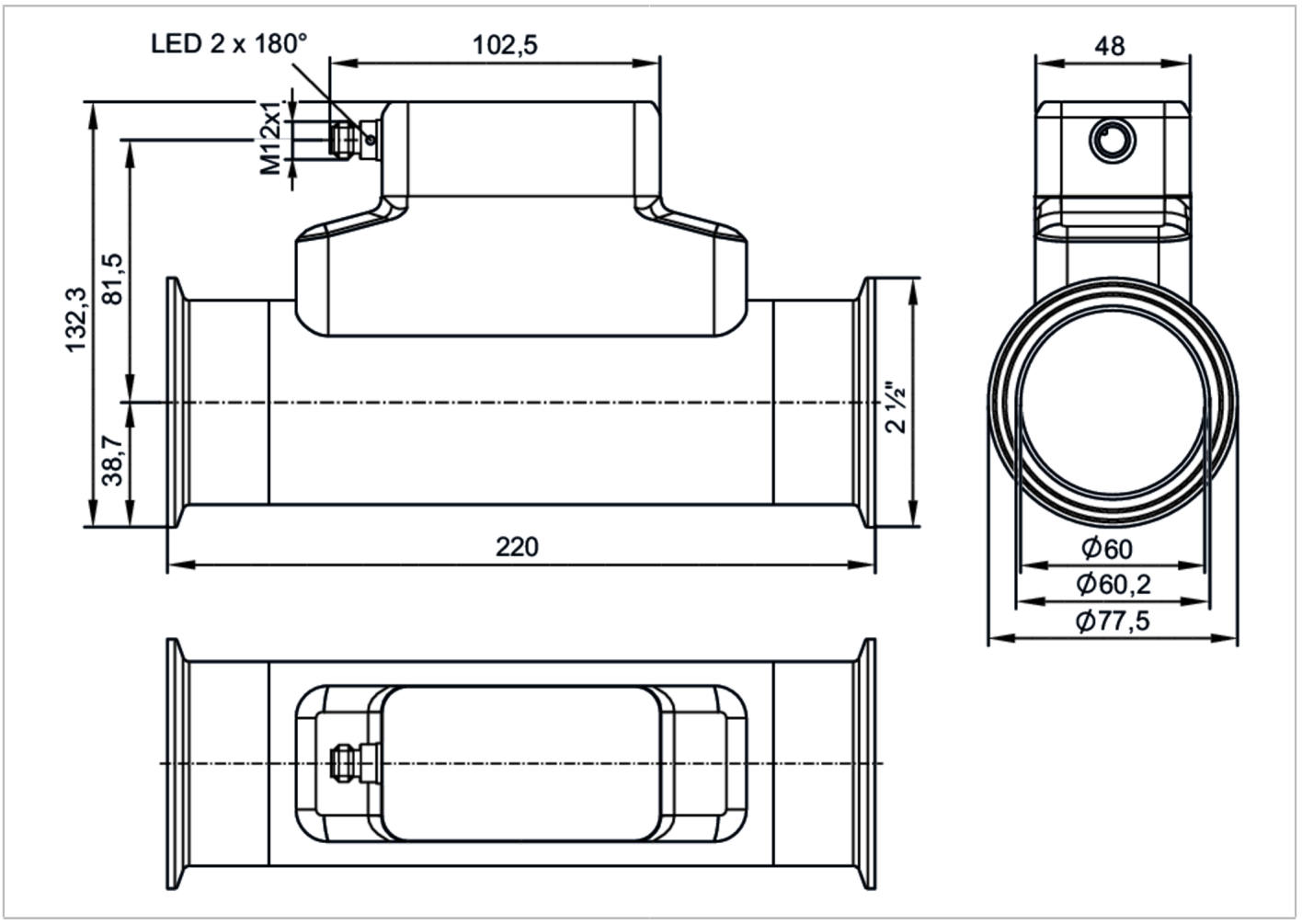
dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

SUH501

Ultrasonic flow meter

SUC65XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	20...2400 l/min	1.2...144 m³/h	320...38040 gph	5.2...634 gpm
Nominal diameter	DN65 (2 1/2“)			
Process connection	Clamp 2,5" DIN 32676 series C (ASME BPE)			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure	40 bar	4 MPa		
Pressure rating	16 bar	1.6 MPa		
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			

SUH501

Ultrasonic flow meter

SUC65XJBFRKG/US

Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2	counter reset		
Outputs					
Total number of outputs		2			
Output signal		OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
		OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		20...2400 l/min	1.2...144 m³/h	320...38040 gph	5.2...634 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		gpm, °F			
Set point SP		33.2...2400 l/min	1.99...144 m³/h	526...38041 gph	8.8...634 gpm
Reset point rP		20.7...2387.5 l/min	1.24...143.25 m³/h	328...37843 gph	5.5...630.7 gpm
Analogue start point ASP		-2400...1920 l/min	-144...115.2 m³/h	-38041...30433 gph	-634...507.2 gpm
Analogue end point AEP		-1920...2400 l/min	-115.2...144 m³/h	-30433...38041 gph	-507.2...634 gpm
Low flow cut-off LFC		20...120 l/min	1.2...7.2 m³/h	317...1902 gph	5.3...31.7 gpm
Frequency end point, FEP		481.5...2400 l/min	28.89...144 m³/h	7630...38040 gph	127.2...634 gpm
Frequency at the end point FRP	[Hz]	1...10000			
Volumetric flow quantity monitoring					
Pulse length	[s]	0.002...2			

SUH501

Ultrasonic flow meter

SUC65XJBFRKG/US

Pulse value		0.1...99990000 l; 0.026…26414563.515 gal	
Temperature monitoring			
Measuring range		-40...120 °C	-40...248 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...120 °C	-39...248 °F
Reset point rP		-40...119.4 °C	-40...247 °F
Analogue start point		-40...88 °C	-40...190.4 °F
Analogue end point		-8...120 °C	17.6...248 °F
Frequency start point, FSP		-40...88 °C	-40...190.4 °F
Frequency end point, FEP		-8...120 °C	17.6...248 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient [% of the span / 10 K]		0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.5; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH501

Ultrasonic flow meter

SUC65XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1853
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	1689.05	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 77.5 x 132.3	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN65 (2 1/2“)	
Process connection		Clamp 2,5" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		2,5" / Ø 63,5 mm x 1,65 mm; (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

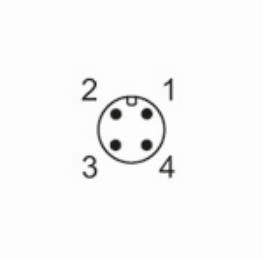
SUH501

Ultrasonic flow meter

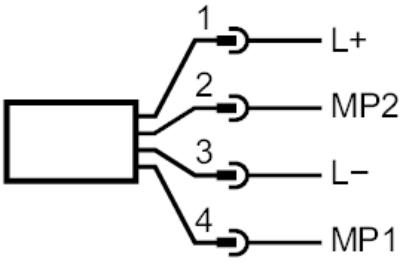
SUC65XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



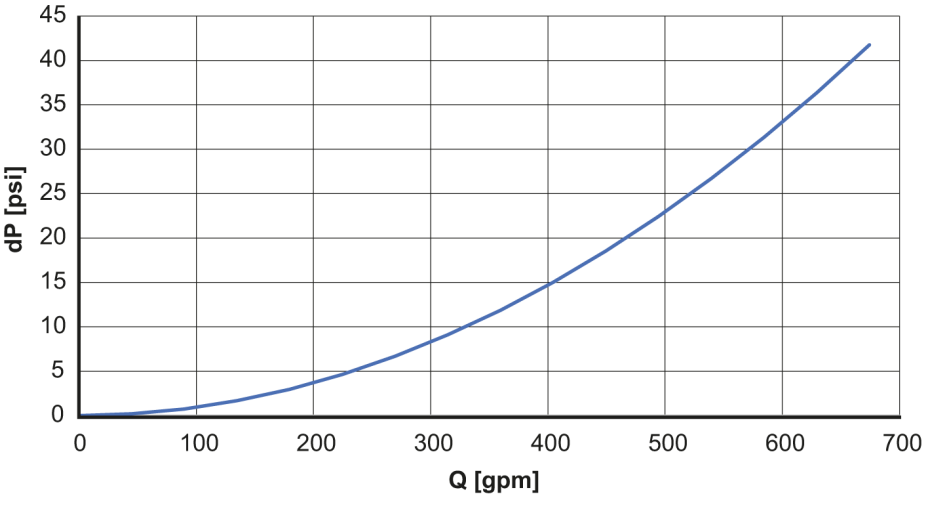
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



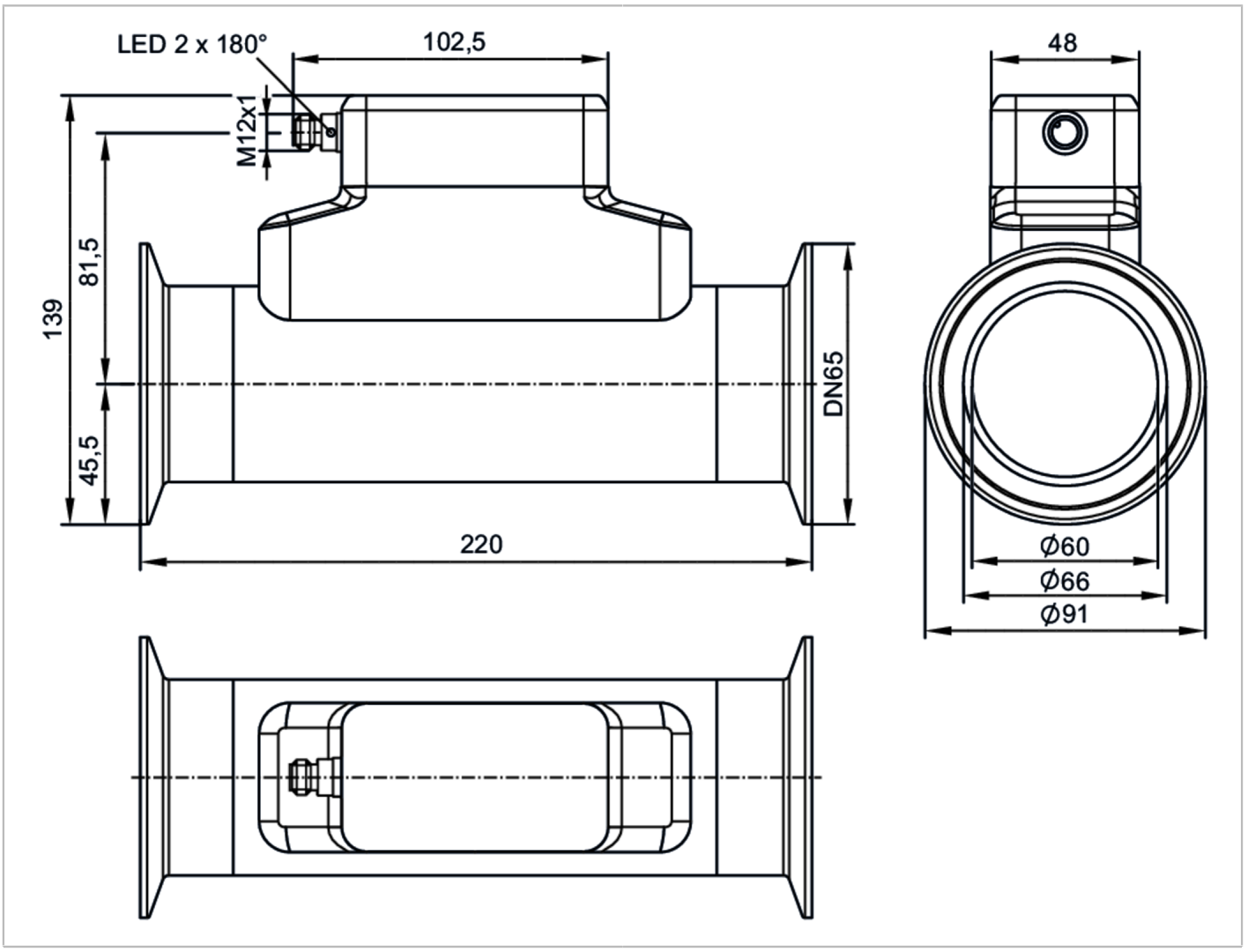
dP [psi] Pressure loss

Q [gpm] volumetric flow quantity

SUH520

Ultrasonic flow meter

SUC65XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	20...2400 l/min	1.2...144 m³/h	320...38040 gph	5.2...634 gpm
Nominal diameter	DN65 (2 1/2“)			
Process connection	Clamp DN65 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure	40 bar	4 MPa		
Pressure rating	16 bar	1.6 MPa		
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			

SUH520

Ultrasonic flow meter

SUC65XJBFRKG/US

Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2	counter reset		
Outputs					
Total number of outputs		2			
Output signal		OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
		OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		20...2400 l/min	1.2...144 m³/h	320...38040 gph	5.2...634 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		l/min, °C			
Set point SP		33.2...2400 l/min	1.99...144 m³/h	526...38041 gph	8.8...634 gpm
Reset point rP		20.7...2387.5 l/min	1.24...143.25 m³/h	328...37843 gph	5.5...630.7 gpm
Analogue start point ASP		-2400...1920 l/min	-144...115.2 m³/h	-38041...30433 gph	-634...507.2 gpm
Analogue end point AEP		-1920...2400 l/min	-115.2...144 m³/h	-30433...38041 gph	-507.2...634 gpm
Low flow cut-off LFC		20...120 l/min	1.2...7.2 m³/h	317...1902 gph	5.3...31.7 gpm
Frequency end point, FEP		481.5...2400 l/min	28.89...144 m³/h	7630...38040 gph	127.2...634 gpm
Frequency at the end point FRP	[Hz]	1...10000			

SUH520

Ultrasonic flow meter

SUC65XJBFRKG/US

Volumetric flow quantity monitoring			
Pulse length	[s]	0.002...2	
Pulse value		0.1...99990000 l; 0.026…26414563.515 gal	
Temperature monitoring			
Measuring range		-40...120 °C	-40...248 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...120 °C	-39...248 °F
Reset point rP		-40...119.4 °C	-40...247 °F
Analogue start point		-40...88 °C	-40...190.4 °F
Analogue end point		-8...120 °C	17.6...248 °F
Frequency start point, FSP		-40...88 °C	-40...190.4 °F
Frequency end point, FEP		-8...120 °C	17.6...248 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.5; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH520

Ultrasonic flow meter

SUC65XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1854
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	1830.4	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 91 x 139	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN65 (2 1/2“)	
Process connection		Clamp DN65 DIN 32676 series A	
Process connection suitable for pipe standard		DN65 / Ø 70 mm x 2 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

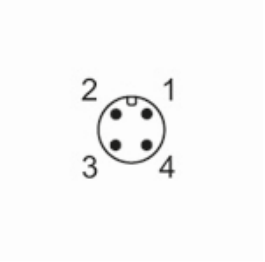
SUH520

Ultrasonic flow meter

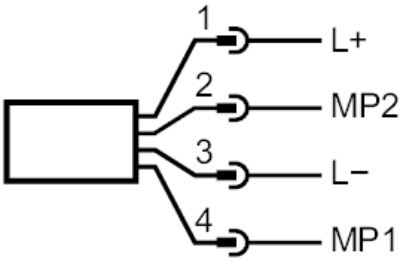
SUC65XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

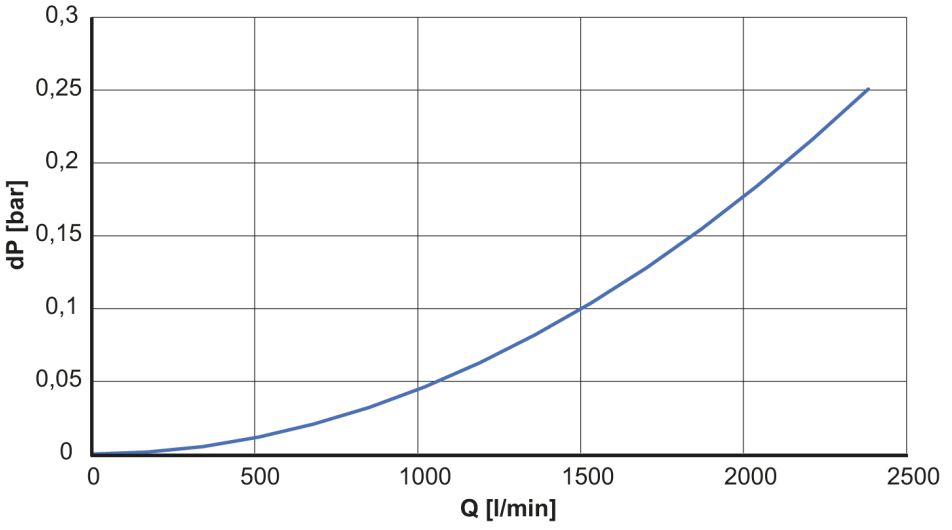
AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

SUH520

Ultrasonic flow meter

SUC65XJBFRKG/US

Diagrams and graphs



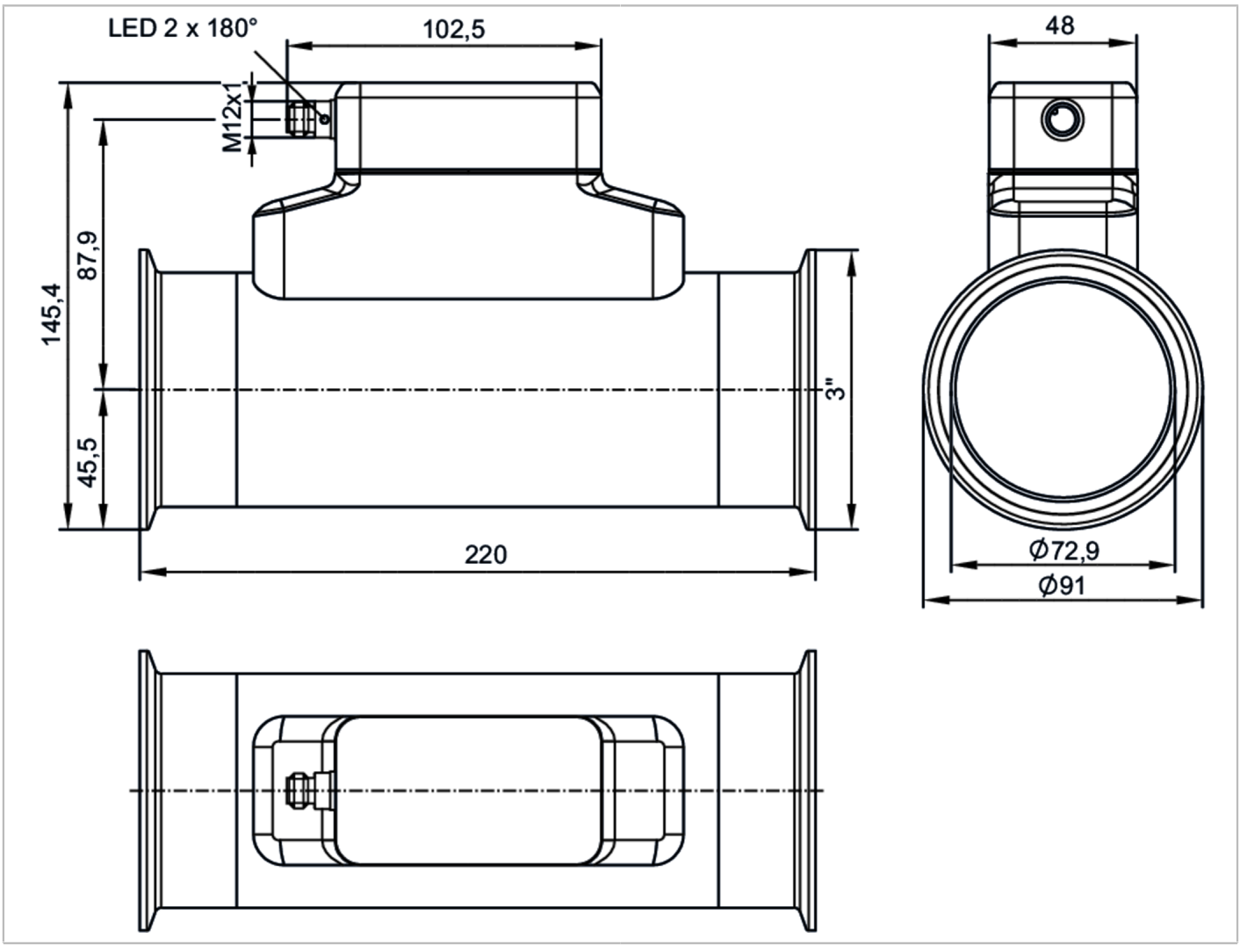
dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

SUH601

Ultrasonic flow meter

SUC80XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics					
Measuring range		25...3600 l/min	1.5...216 m³/h	400...57061 gph	6.6...951 gpm
Nominal diameter		DN80 (3“)			
Process connection		Clamp 3" DIN 32676 series C (ASME BPE)			
Application					
Special feature		Gold-plated contacts			
Application		food and beverage industry			
Media		ultra-pure water; water; hydrous media			
Note on media		hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature	[°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure		40 bar		4 MPa	
Pressure rating		16 bar		1.6 MPa	
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			

SUH601

Ultrasonic flow meter

SUC80XJBFRKG/US

Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2	counter reset		
Outputs					
Total number of outputs		2			
Output signal		OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
		OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		25...3600 l/min	1.5...216 m³/h	400...57061 gph	6.6...951 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		gpm, °F			
Set point SP		44.8...3600 l/min	2.7...216 m³/h	710...57061 gph	11.8...951 gpm
Reset point rP		26.1...3581.3 l/min	1.6...214.9 m³/h	413...56764 gph	6.9...946.1 gpm
Analogue start point ASP		-3600...2880 l/min	-216...172.8 m³/h	-57060...45650 gph	-951...760.8 gpm
Analogue end point AEP		-2880...3600 l/min	-172.8...216 m³/h	-45650...57060 gph	-760.8...951 gpm
Low flow cut-off LFC		25...180 l/min	1.5...10.8 m³/h	400...2850 gph	6.6...47.6 gpm
Frequency end point, FEP		722.2...3600 l/min	43.3...216 m³/h	11450...57060 gph	190.8...951 gpm
Frequency at the end point FRP	[Hz]	1...10000			

SUH601

Ultrasonic flow meter

SUC80XJBFRKG/US

Volumetric flow quantity monitoring			
Pulse length	[s]	0.002...2	
Pulse value		0.1...99990000 l; 0.026…26414563.515 gal	
Temperature monitoring			
Measuring range		-40...120 °C	-40...248 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...120 °C	-39...248 °F
Reset point rP		-40...119.4 °C	-40...247 °F
Analogue start point		-40...88 °C	-40...190.4 °F
Analogue end point		-8...120 °C	17.6...248 °F
Frequency start point, FSP		-40...88 °C	-40...190.4 °F
Frequency end point, FEP		-8...120 °C	17.6...248 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.5; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH601

Ultrasonic flow meter

SUC80XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1855
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	1863.8	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 91 x 145.4	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN80 (3“)	
Process connection		Clamp 3" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		3" / Ø 76,2 mm x 1,65 mm; (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

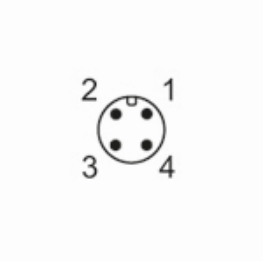
SUH601

Ultrasonic flow meter

SUC80XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated

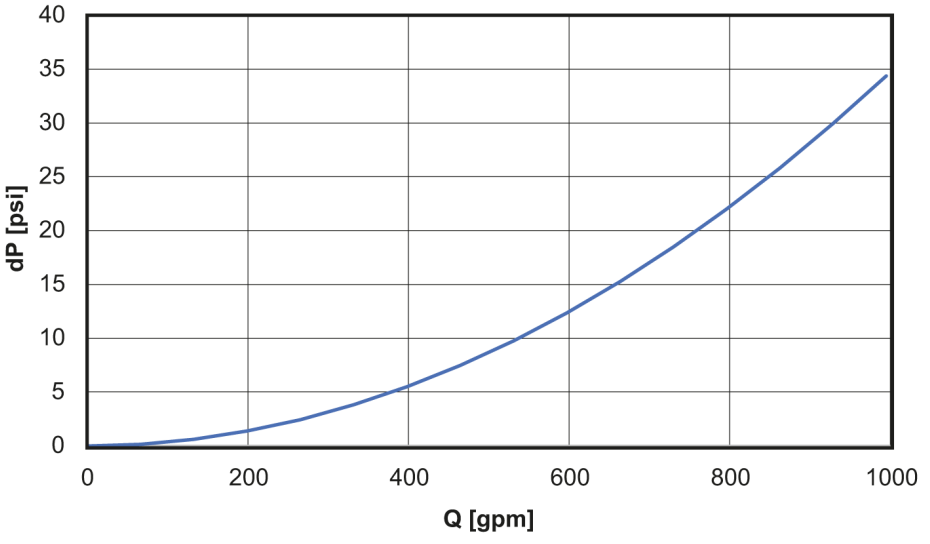


Connection

1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



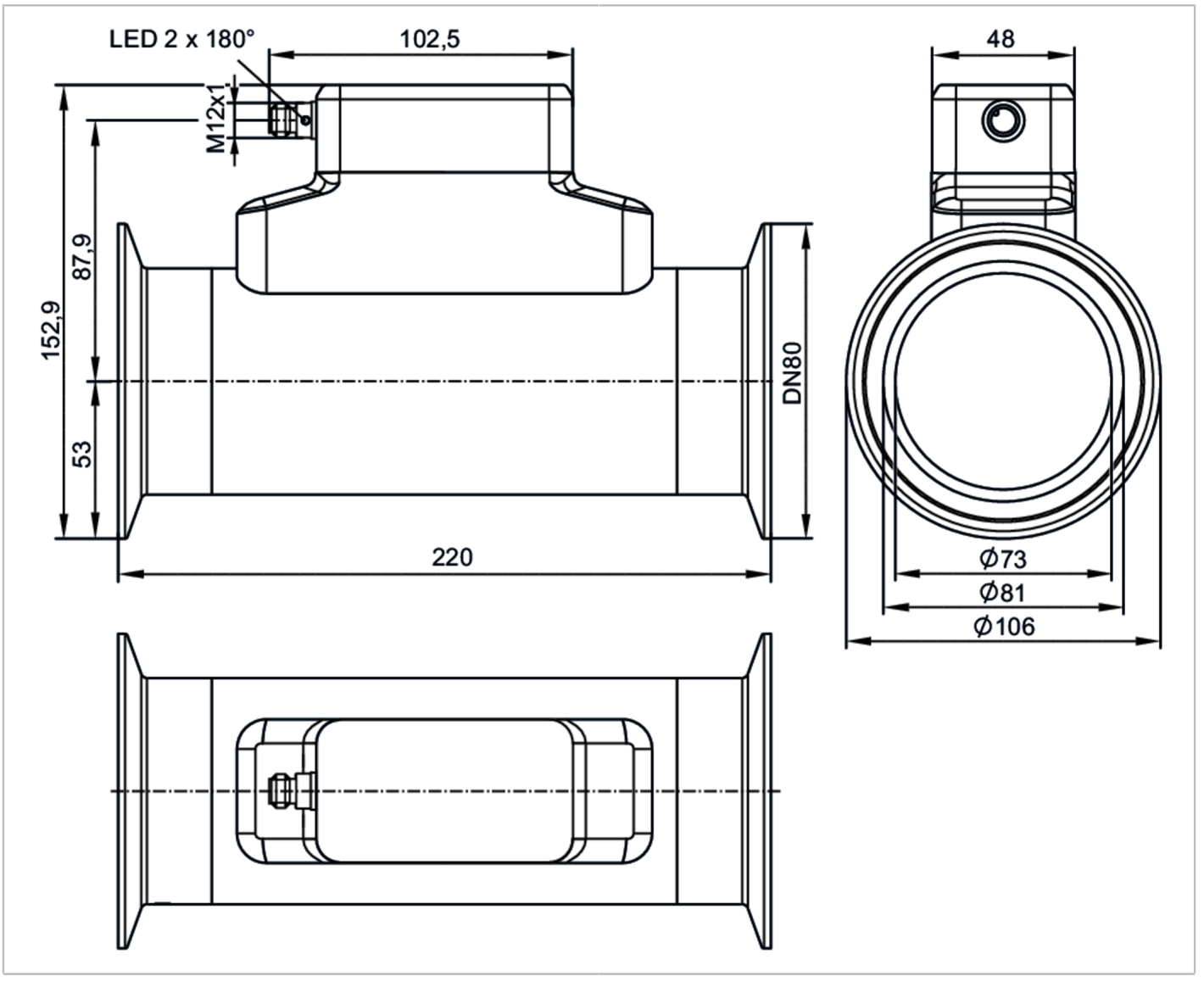
dP [psi] Pressure loss

Q [gpm] volumetric flow quantity

SUH620

Ultrasonic flow meter

SUC80XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	25...3600 l/min	1.5...216 m³/h	400...57061 gph	6.6...951 gpm
Nominal diameter	DN80 (3“)			
Process connection	Clamp DN80 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure	40 bar	4 MPa		
Pressure rating	16 bar	1.6 MPa		
Vacuum resistance [mbar]	-1000			

SUH620

Ultrasonic flow meter

SUC80XJBFRKG/US

Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2	counter reset		
Outputs					
Total number of outputs		2			
Output signal		OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
		OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		25...3600 l/min	1.5...216 m³/h	400...57061 gph	6.6...951 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		l/min, °C			
Set point SP		44.8...3600 l/min	2.7...216 m³/h	710...57061 gph	11.8...951 gpm
Reset point rP		26.1...3581.3 l/min	1.6...214.9 m³/h	413...56764 gph	6.9...946.1 gpm
Analogue start point ASP		-3600...2880 l/min	-216...172.8 m³/h	-57060...45650 gph	-951...760.8 gpm
Analogue end point AEP		-2880...3600 l/min	-172.8...216 m³/h	-45650...57060 gph	-760.8...951 gpm
Low flow cut-off LFC		25...180 l/min	1.5...10.8 m³/h	400...2850 gph	6.6...47.6 gpm

SUH620

Ultrasonic flow meter

SUC80XJBFRKG/US

Frequency end point, FEP	722.2...3600 l/min	43.3...216 m³/h	11450...57060 gph	190.8...951 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l; 0.026…26414563.515 gal			
Temperature monitoring				
Measuring range	-40...120 °C	-40...248 °F		
Resolution	0.1 °C	0.1 °F		
Set point SP	-39.4...120 °C	-39...248 °F		
Reset point rP	-40...119.4 °C	-40...247 °F		
Analogue start point	-40...88 °C	-40...190.4 °F		
Analogue end point	-8...120 °C	17.6...248 °F		
Frequency start point, FSP	-40...88 °C	-40...190.4 °F		
Frequency end point, FEP	-8...120 °C	17.6...248 °F		
Frequency at the end point FRP [Hz]	1...10000			
Accuracy / deviations				
Accuracy (in the measuring range)	only up to 100 °C; at higher temperatures, only the repeatability is within the specification.			
Flow monitoring				
Accuracy (in the measuring range)	water	± (2,0 % MW + 0,5 % MEW)		
Repeatability	± 0,2 % MEW			
Temperature monitoring				
Accuracy [K]	± 2,5 (Q > 5 % MEW)			
Temperature coefficient [% of the span / 10 K]	0,2			
Response times				
Flow monitoring				
Response time [s]	< 0.5; (dAP = 0, T09)			
Damping process value dAP [s]	0...5			
Temperature monitoring				
Dynamic response T05 / T09 [s]	5,7 / 86			
Software / programming				
Diagnostic functions	direction of flow detection; signal quality			
Interfaces				
Communication interface	IO-Link			
Transmission type	COM2 (38,4 kBaud)			
IO-Link revision	1.1.3			
SDCI standard	IEC 61131-9: 2013-07			
Profiles	BLOB	Binary Large Object transfer		
	Common - I&D	Identification and Diagnosis		
Required master port type	A			
Process data analogue	3			
Process data binary	2			

SUH620

Ultrasonic flow meter

SUC80XJBFRKG/US

Min. process cycle time	[ms]	9.6	
IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1856
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	1975.15	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 106 x 152.9	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN80 (3“)	
Process connection		Clamp DN80 DIN 32676 series A	
Process connection suitable for pipe standard		DN80 / Ø 85 mm x 2 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	

SUH620

Ultrasonic flow meter

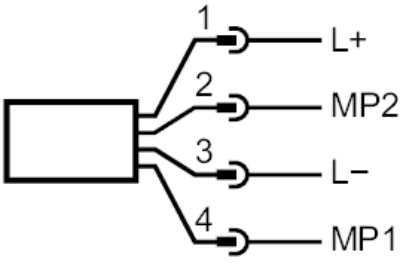
SUC80XJBFRKG/US

Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated

Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

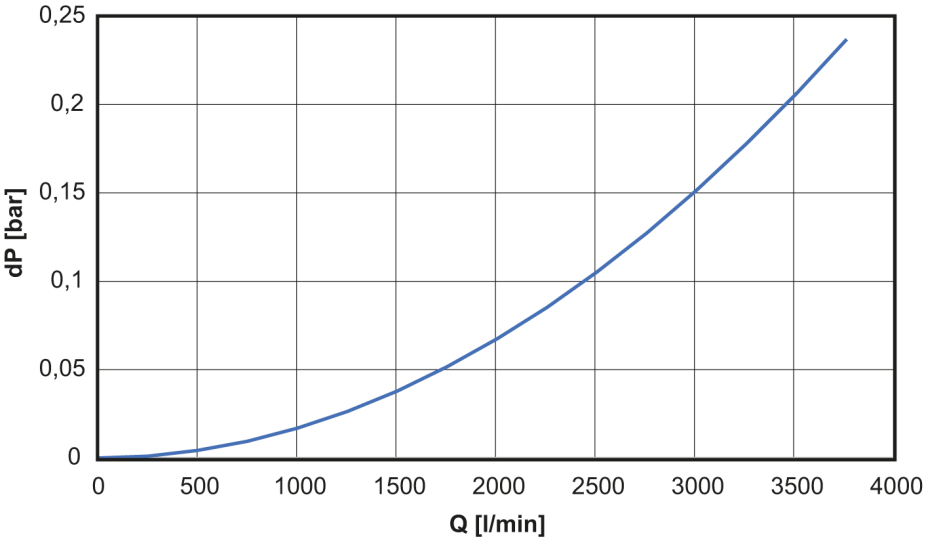
AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

SUH620

Ultrasonic flow meter

SUC80XJBFRKG/US

Diagrams and graphs



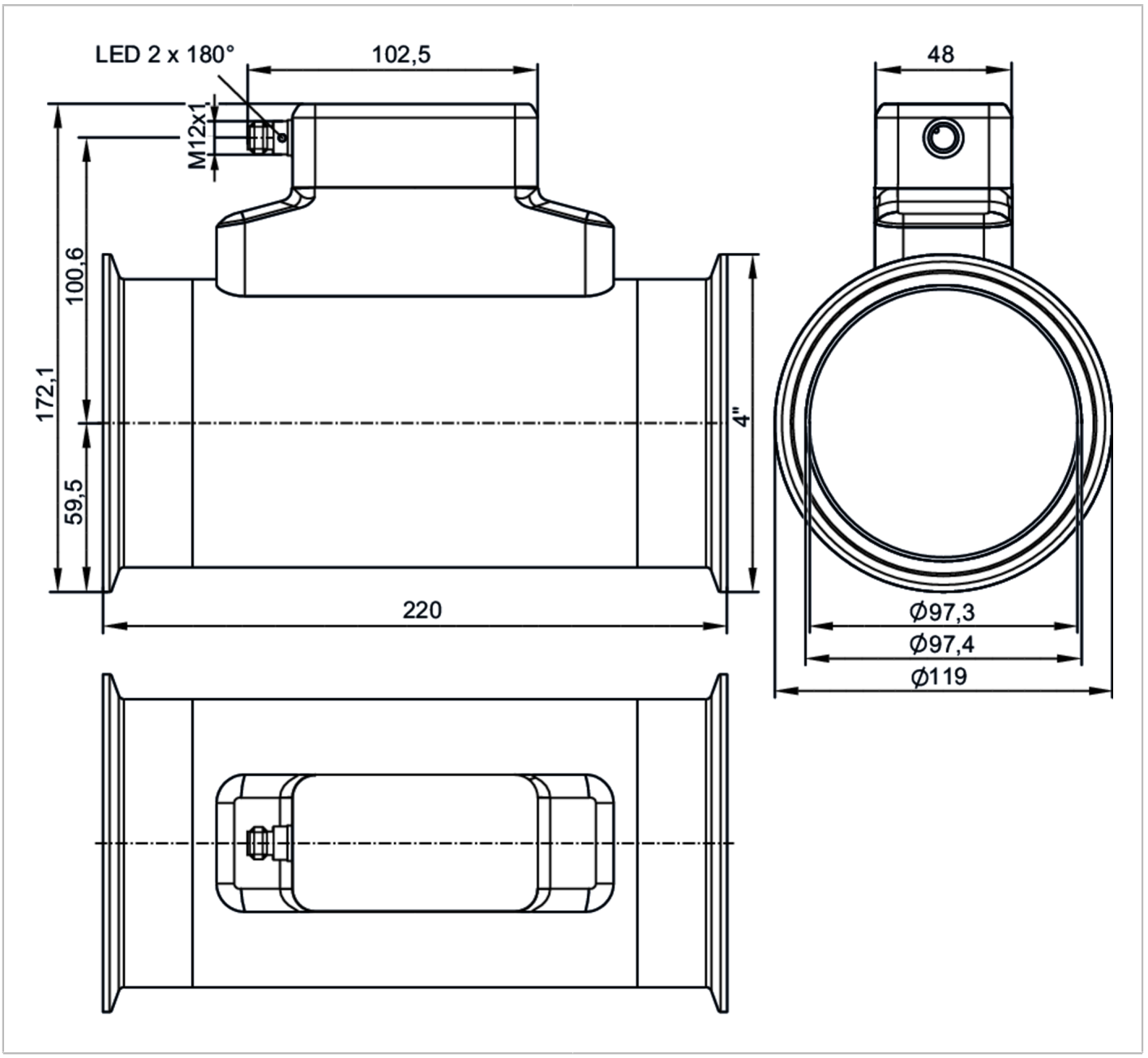
dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

SUH701

Ultrasonic flow meter

SUCX0XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Nominal diameter	DN100 (4“)			
Process connection	Clamp 4" DIN 32676 series C (ASME BPE)			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure	40 bar		4 MPa	

SUH701

Ultrasonic flow meter

SUCX0XJBFRKG/US

Pressure rating		16 bar		1.6 MPa	
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2		counter reset	
Outputs					
Total number of outputs		2			
Output signal		OUT1		switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link	
		OUT2		switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal	
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		gpm, °F			
Set point SP		78...6000 l/min	4.7...360 m³/h	1236...95102 gph	20.6...1585 gpm
Reset point rP		46.8...5968.8 l/min	2.8...358.1 m³/h	742...94607 gph	12.4...1576.8 gpm
Analogue start point ASP		-6000...4800 l/min	-360...288 m³/h	-95102...76082 gph	-1585...1268 gpm

SUH701

Ultrasonic flow meter

SUCX0XJBFRKG/US

Analogue end point AEP	-4800...6000 l/min	-288...360 m³/h	-76082...95102 gph	-1268...1585 gpm
Low flow cut-off LFC	45...300 l/min	2.7...18 m³/h	713...4755 gph	11.9...79.3 gpm
Frequency end point, FEP	1203.7...6000 l/min	72.2...360 m³/h	19079...95102 gph	318...1585 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l; 0.026…26414563.515 gal			
Temperature monitoring				
Measuring range	-40...120 °C		-40...248 °F	
Resolution	0.1 °C		0.1 °F	
Set point SP	-39.4...120 °C		-39...248 °F	
Reset point rP	-40...119.4 °C		-40...247 °F	
Analogue start point	-40...88 °C		-40...190.4 °F	
Analogue end point	-8...120 °C		17.6...248 °F	
Frequency start point, FSP	-40...88 °C		-40...190.4 °F	
Frequency end point, FEP	-8...120 °C		17.6...248 °F	
Frequency at the end point FRP [Hz]	1...10000			
Accuracy / deviations				
Accuracy (in the measuring range)	only up to 100 °C; at higher temperatures, only the repeatability is within the specification.			
Flow monitoring				
Accuracy (in the measuring range)	water		± (2,0 % MW + 0,5 % MEW)	
Repeatability	± 0,2 % MEW			
Temperature monitoring				
Accuracy [K]	± 2,5 (Q > 5 % MEW)			
Temperature coefficient [% of the span / 10 K]	0,2			
Response times				
Flow monitoring				
Response time [s]	< 0.5; (dAP = 0, T09)			
Damping process value dAP [s]	0...5			
Temperature monitoring				
Dynamic response T05 / T09 [s]	5,7 / 86			
Software / programming				
Diagnostic functions	direction of flow detection; signal quality			
Interfaces				
Communication interface	IO-Link			
Transmission type	COM2 (38,4 kBaud)			
IO-Link revision	1.1.3			
SDCI standard	IEC 61131-9: 2013-07			
Profiles	BLOB		Binary Large Object transfer	
	Common - I&D		Identification and Diagnosis	
Required master port type	A			

SUH701

Ultrasonic flow meter

SUCX0XJBFRKG/US

Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	
IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1857
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	2370.6	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 119 x 172.1	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN100 (4“)	
Process connection		Clamp 4" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		4" / Ø 101,6 mm x 2,11 mm; (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	

SUH701

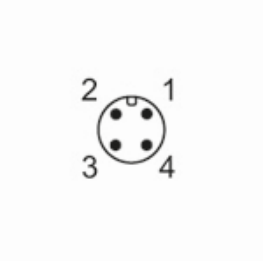
Ultrasonic flow meter

SUCX0XJBFRKG/US

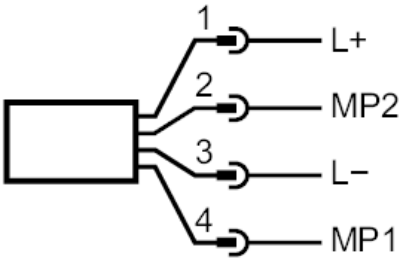
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.
Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

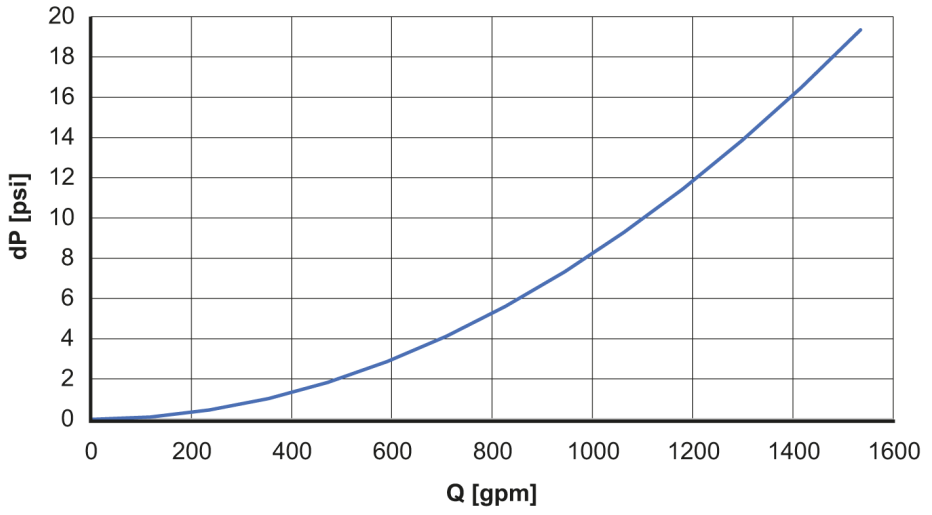
AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

SUH701

Ultrasonic flow meter

SUCX0XJBFRKG/US

Diagrams and graphs



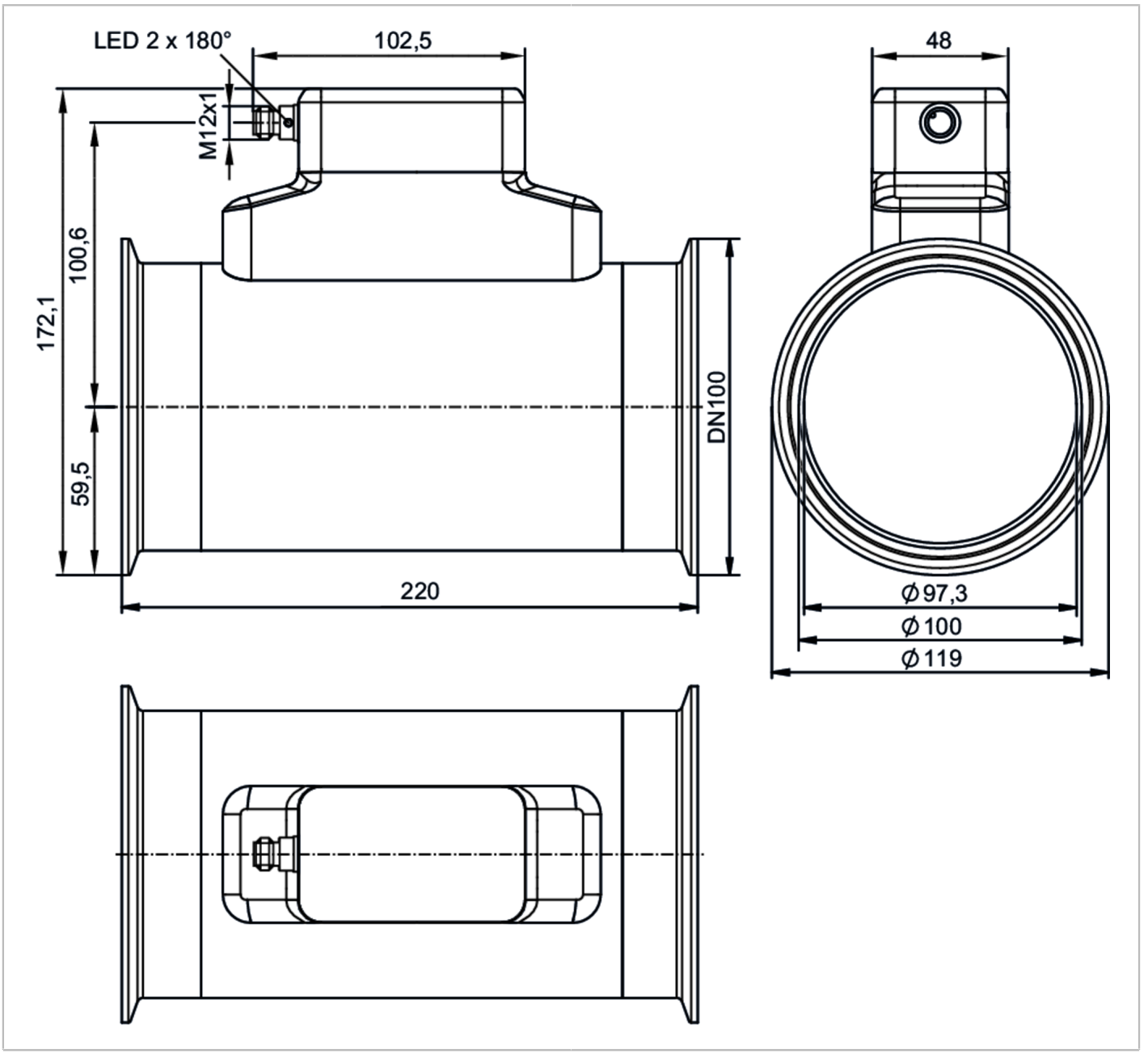
dP [psi] Pressure loss

Q [gpm] volumetric flow quantity

SUH720

Ultrasonic flow meter

SUCX0XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Nominal diameter	DN100 (4“)			
Process connection	Clamp DN100 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...120; (< 1 h: 150)			
Min. bursting pressure	40 bar		4 MPa	

SUH720

Ultrasonic flow meter

SUCX0XJBFRKG/US

Pressure rating		16 bar		1.6 MPa	
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			
Inputs					
Inputs		OUT2		counter reset	
Outputs					
Total number of outputs		2			
Output signal		OUT1		switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link	
		OUT2		switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal	
Electrical design		PNP/NPN			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Analogue					
Number of analogue outputs		1			
Analogue current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Measuring/setting range					
Measuring range		45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting		l/min, °C			
Set point SP		78...6000 l/min	4.7...360 m³/h	1236...95102 gph	20.6...1585 gpm
Reset point rP		46.8...5968.8 l/min	2.8...358.1 m³/h	742...94607 gph	12.4...1576.8 gpm
Analogue start point ASP		-6000...4800 l/min	-360...288 m³/h	-95102...76082 gph	-1585...1268 gpm

SUH720

Ultrasonic flow meter

SUCX0XJBFRKG/US

Analogue end point AEP	-4800...6000 l/min	-288...360 m³/h	-76082...95102 gph	-1268...1585 gpm
Low flow cut-off LFC	45...300 l/min	2.7...18 m³/h	713...4755 gph	11.9...79.3 gpm
Frequency end point, FEP	1203.7...6000 l/min	72.2...360 m³/h	19079...95102 gph	318...1585 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l; 0.026…26414563.515 gal			
Temperature monitoring				
Measuring range	-40...120 °C		-40...248 °F	
Resolution	0.1 °C		0.1 °F	
Set point SP	-39.4...120 °C		-39...248 °F	
Reset point rP	-40...119.4 °C		-40...247 °F	
Analogue start point	-40...88 °C		-40...190.4 °F	
Analogue end point	-8...120 °C		17.6...248 °F	
Frequency start point, FSP	-40...88 °C		-40...190.4 °F	
Frequency end point, FEP	-8...120 °C		17.6...248 °F	
Frequency at the end point FRP [Hz]	1...10000			

Accuracy / deviations

Accuracy (in the measuring range)	only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring		
Accuracy (in the measuring range)	water	± (2,0 % MW + 0,5 % MEW)
Repeatability	± 0,2 % MEW	
Temperature monitoring		
Accuracy [K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient [% of the span / 10 K]	0,2	

Response times

Flow monitoring	
Response time [s]	< 0.5; (dAP = 0, T09)
Damping process value dAP [s]	0...5
Temperature monitoring	
Dynamic response T05 / T09 [s]	5,7 / 86

Software / programming

Diagnostic functions	direction of flow detection; signal quality

Interfaces

Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1.3	
SDCI standard	IEC 61131-9: 2013-07	
Profiles	BLOB	Binary Large Object transfer
	Common - I&D	Identification and Diagnosis
Required master port type	A	

SUH720

Ultrasonic flow meter

SUCX0XJBFRKG/US

Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	
IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1858
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I039
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	2328.25	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	220 x 119 x 172.1	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN100 (4“)	
Process connection		Clamp DN100 DIN 32676 series A	
Process connection suitable for pipe standard		DN100 / Ø 104 mm x 2 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	

SUH720

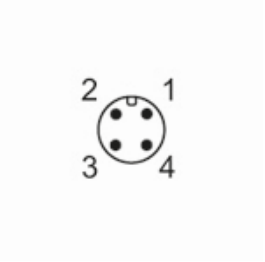
Ultrasonic flow meter

SUCX0XJBFRKG/US

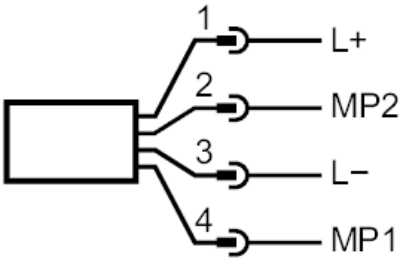
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.
Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

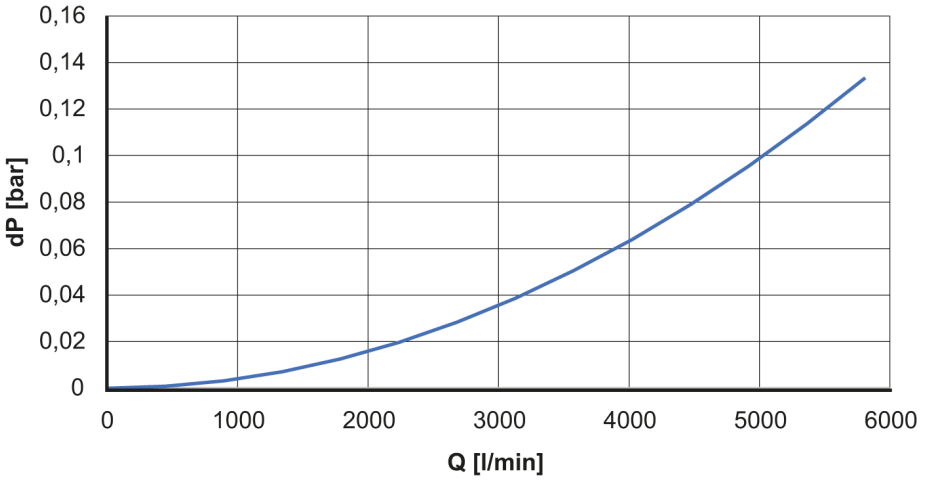
AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

SUH720

Ultrasonic flow meter

SUCX0XJBFRKG/US

Diagrams and graphs



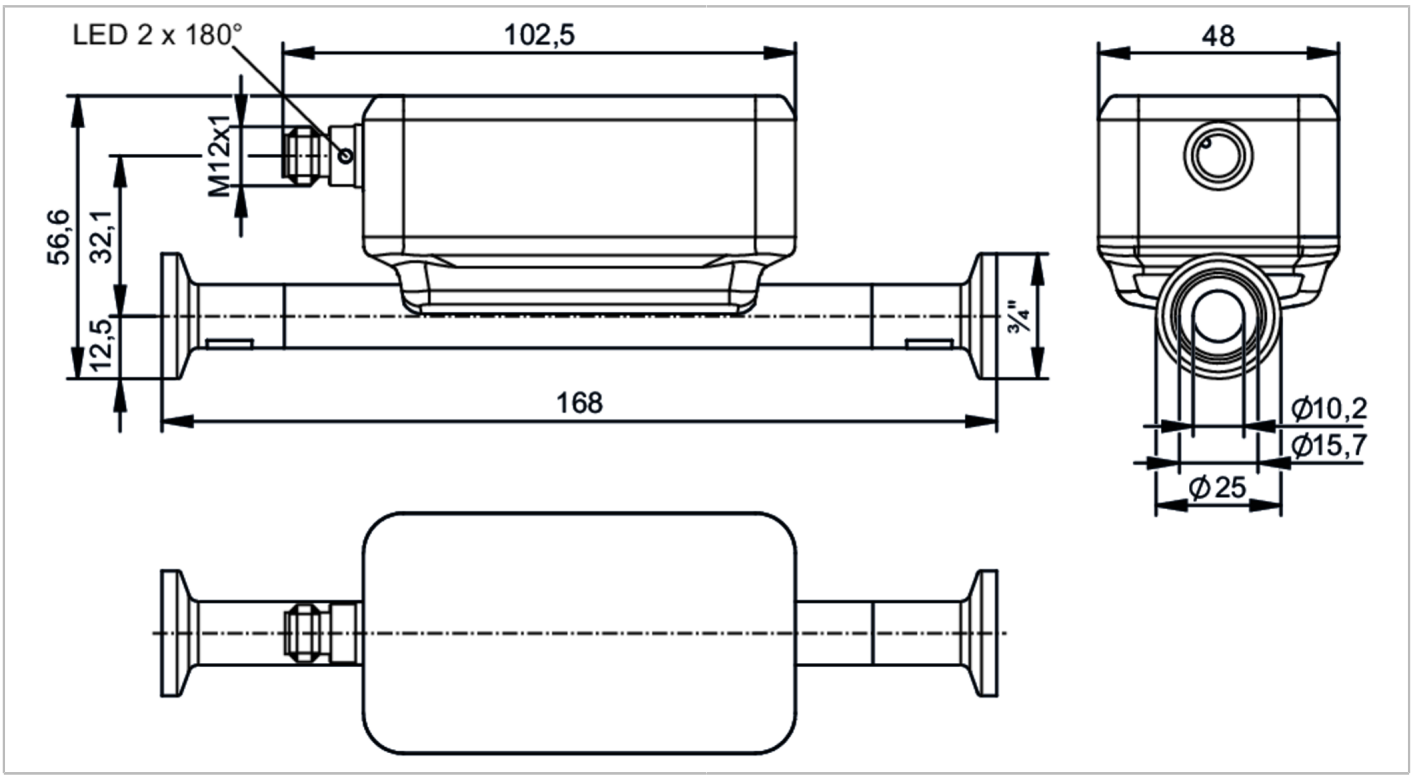
dP [bar] Pressure loss

Q [l/min] volumetric flow quantity

SUH801

Ultrasonic flow meter

SUC20XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics					
Measuring range		1...75 l/min	0.06...4.5 m³/h	16...1189 gph	0.26...19.81 gpm
Nominal diameter		DN20 (3/4“)			
Process connection		Clamp 3/4" DIN 32676 series C (ASME BPE)			
Application					
Special feature		Gold-plated contacts			
Application		food and beverage industry			
Media		ultra-pure water; water; hydrous media			
Note on media		hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature	[°C]	-40...125; (< 1 h: 150)			
Min. bursting pressure		40 bar		4 MPa	
Pressure rating		16 bar		1.6 MPa	
Vacuum resistance	[mbar]	-1000			
Electrical data					
Operating voltage	[V]	18...32 DC; (to SELV/PELV)			
Current consumption	[mA]	< 75			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Measuring principle		ultrasonic			
Inputs / outputs					
Total number of inputs and outputs		2			

SUH801

Ultrasonic flow meter

SUC20XJBFRKG/US

Inputs				
Inputs	OUT2		counter reset	
Outputs				
Total number of outputs	2			
Output signal	OUT1		switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link	
	OUT2		switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal	
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	1...75 l/min	0.06...4.5 m³/h	16...1189 gph	0.26...19.81 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	gpm, °F			
Set point SP	1.4...75 l/min	0.085...4.5 m³/h	23...1189 gph	0.38...19.81 gpm
Reset point rP	1...74.6 l/min	0.062...4.477 m³/h	16...1183 gph	0.27...19.71 gpm
Analogue start point ASP	-75...60 l/min	-4.5...3.6 m³/h	-1189...951 gph	-19.81...15.85 gpm
Analogue end point AEP	-60...75 l/min	-3.6...4.5 m³/h	-951...1189 gph	-15.85...19.81 gpm
Low flow cut-off LFC	1...3.8 l/min	0.06...0.225 m³/h	16...59 gph	0.26...0.99 gpm
Frequency end point, FEP	15...75 l/min	0.903...4.5 m³/h	238...1189 gph	3.97...19.81 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.01...99990000 l; 0.0026…26414563.515 gal			
Temperature monitoring				
Measuring range	-40...125 °C		-40...257 °F	
Resolution	0.1 °C		0.1 °F	
Set point SP	-39.4...125 °C		-38.9...257 °F	

SUH801

Ultrasonic flow meter

SUC20XJBFRKG/US

Reset point rP		-40...124.4 °C	-40...255.9 °F
Analogue start point		-40...92 °C	-40...197.6 °F
Analogue end point		-7...125 °C	19.4...257 °F
Frequency start point, FSP		-40...92 °C	-40...197.6 °F
Frequency end point, FEP		-7...125 °C	19.4...257 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.3; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	
IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1912

SUH801

Ultrasonic flow meter

SUC20XJBFRKG/US

Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I038
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	493.6	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	168 x 48 x 56.6	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN20 (3/4“)	
Process connection		Clamp 3/4" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard		3/4" / Ø 19,05 mm x 1,65 mm; (DIN 11866 series C)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

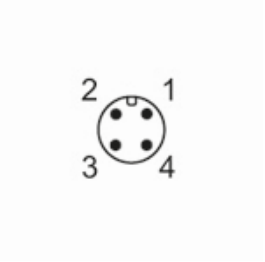
SUH801

Ultrasonic flow meter

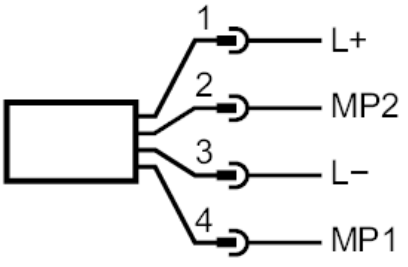
SUC20XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



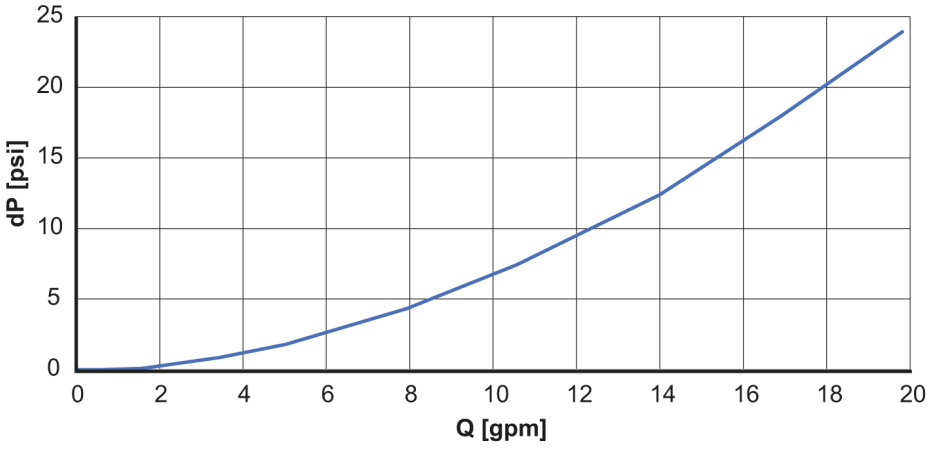
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



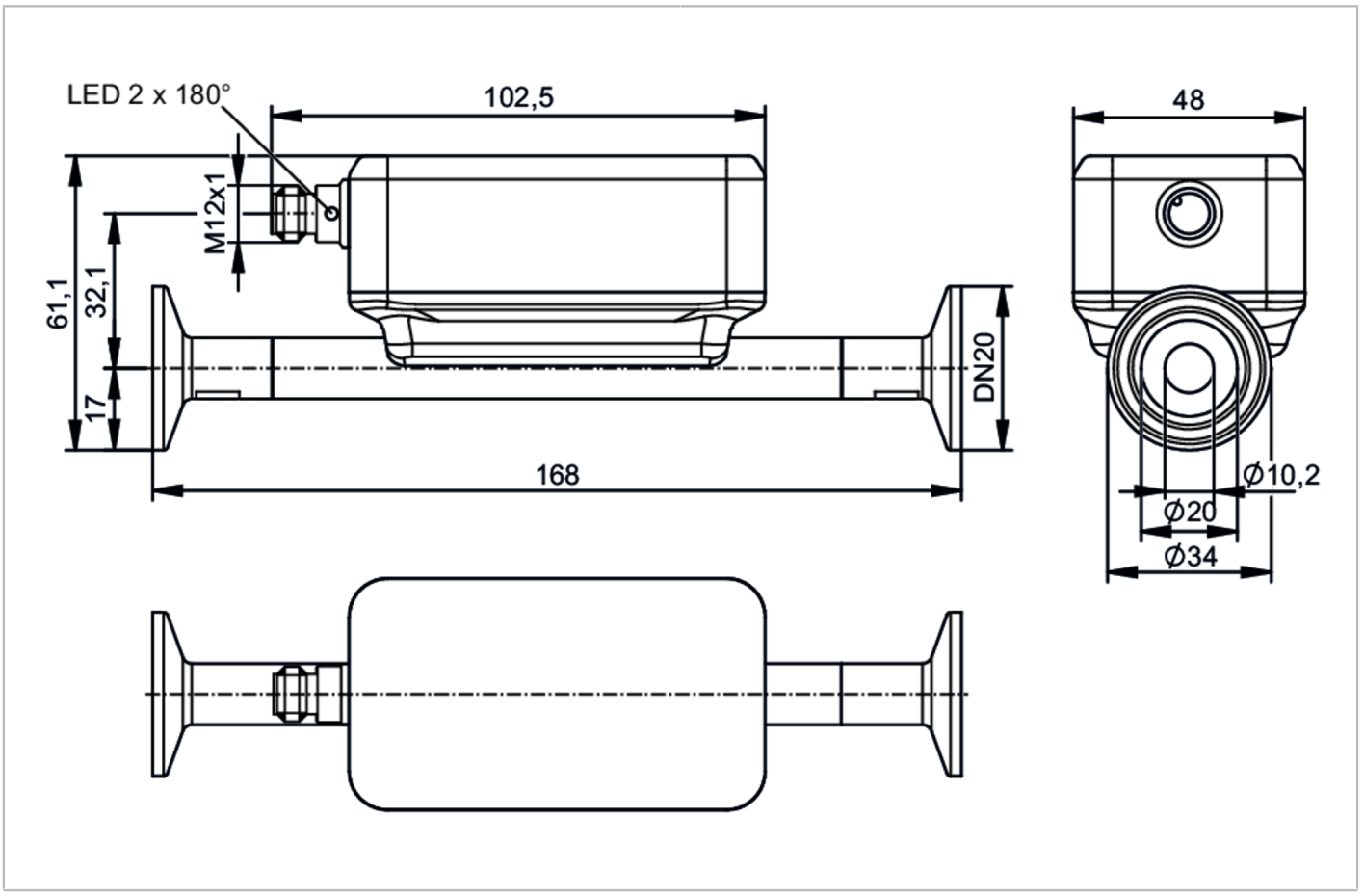
dP [psi] Pressure loss

Q [gpm] volumetric flow quantity

SUH820

Ultrasonic flow meter

SUC20XJBFRKG/US



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	1...75 l/min	0.06...4.5 m³/h	16...1189 gph	0.26...19.81 gpm
Nominal diameter	DN20 (3/4“)			
Process connection	Clamp DN20 DIN 32676 series A			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature [°C]	-40...125; (< 1 h: 150)			
Min. bursting pressure	40 bar		4 MPa	
Pressure rating	16 bar		1.6 MPa	
Vacuum resistance [mbar]	-1000			
Electrical data				
Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	5			

SUH820

Ultrasonic flow meter

SUC20XJBFRKG/US

Measuring principle	ultrasonic			
Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Measuring/setting range				
Measuring range	1...75 l/min	0.06...4.5 m³/h	16...1189 gph	0.26...19.81 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min, °C			
Set point SP	1.4...75 l/min	0.085...4.5 m³/h	23...1189 gph	0.38...19.81 gpm
Reset point rP	1...74.6 l/min	0.062...4.477 m³/h	16...1183 gph	0.27...19.71 gpm
Analogue start point ASP	-75...60 l/min	-4.5...3.6 m³/h	-1189...951 gph	-19.81...15.85 gpm
Analogue end point AEP	-60...75 l/min	-3.6...4.5 m³/h	-951...1189 gph	-15.85...19.81 gpm
Low flow cut-off LFC	1...3.8 l/min	0.06...0.225 m³/h	16...59 gph	0.26...0.99 gpm
Frequency end point, FEP	15...75 l/min	0.903...4.5 m³/h	238...1189 gph	3.97...19.81 gpm
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.01...99990000 l; 0.0026…26414563.515 gal			

SUH820

Ultrasonic flow meter

SUC20XJBFRKG/US

Temperature monitoring			
Measuring range		-40...125 °C	-40...257 °F
Resolution		0.1 °C	0.1 °F
Set point SP		-39.4...125 °C	-38.9...257 °F
Reset point rP		-40...124.4 °C	-40...255.9 °F
Analogue start point		-40...92 °C	-40...197.6 °F
Analogue end point		-7...125 °C	19.4...257 °F
Frequency start point, FSP		-40...92 °C	-40...197.6 °F
Frequency end point, FEP		-7...125 °C	19.4...257 °F
Frequency at the end point FRP	[Hz]	1...10000	
Accuracy / deviations			
Accuracy (in the measuring range)		only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Flow monitoring			
Accuracy (in the measuring range)		water	± (2,0 % MW + 0,5 % MEW)
Repeatability		± 0,2 % MEW	
Temperature monitoring			
Accuracy	[K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient	[% of the span / 10 K]	0,2	
Response times			
Flow monitoring			
Response time	[s]	< 0.3; (dAP = 0, T09)	
Damping process value dAP	[s]	0...5	
Temperature monitoring			
Dynamic response T05 / T09	[s]	5,7 / 86	
Software / programming			
Diagnostic functions		direction of flow detection; signal quality	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	

SUH820

Ultrasonic flow meter

SUC20XJBFRKG/US

IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1913
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 69; (DIN EN 60529)	
Tests / approvals			
EMC		DIN 61326-1:2021	
Shock resistance		DIN IEC 68-2-27	20 g (11ms)
Vibration resistance		DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	136	
UL approval		UL approval no.	I038
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	513.8	
Housing		rectangular	
Inlet pipe length		5 x DN	
Outlet pipe length		1 x DN	
Dimensions	[mm]	168 x 48 x 61.1	
Materials		housing: stainless steel (316L/1.4404); connector: PEI, FKM	
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4435); Process connection: stainless steel (316L/1.4404)	
Nominal diameter		DN20 (3/4“)	
Process connection		Clamp DN20 DIN 32676 series A	
Process connection suitable for pipe standard		DN20 / Ø 23 mm x 1,5 mm; (DIN 11866 series A); (DIN EN 10357 series A)	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)	
Displays / operating elements			
Display		operating status	1 x LED, green
Accessories			
Items supplied		package insert	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
		pulse and totaliser signal are only available for one of the two outputs	
		the specified surface characteristics Ra/Rz of the wetted surfaces do not apply to the weld seam.	
Pack quantity		1 pcs.	

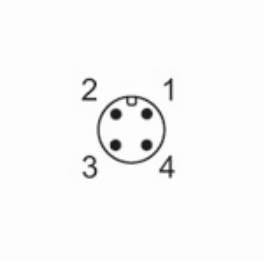
SUH820

Ultrasonic flow meter

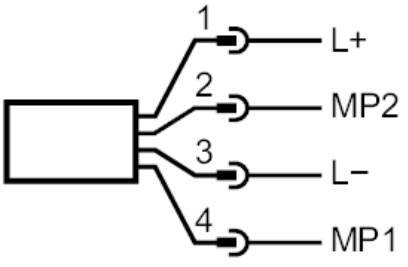
SUC20XJBFRKG/US

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



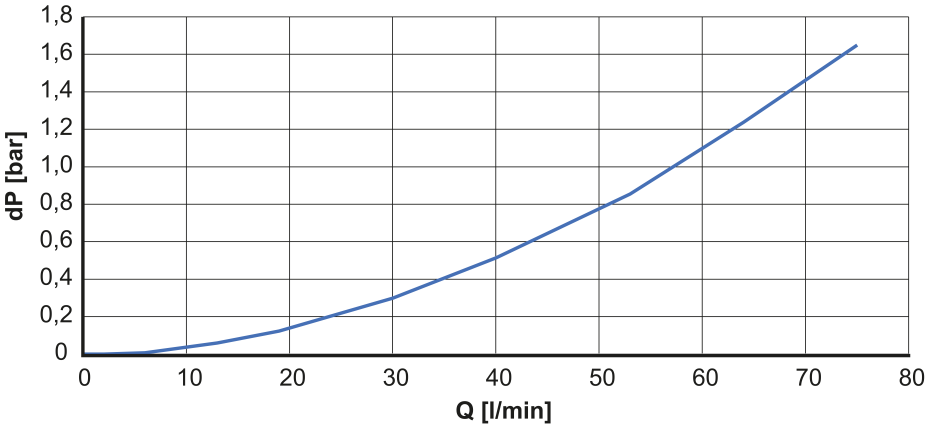
Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs



dP [bar] Pressure loss

Q [l/min] volumetric flow quantity