บริษัท ฟลูเทค จำกัด
Flu-tech co.,ltd
Authorized Distributor in Thailand

COMPACT flow measuring device

- For continuous multiparameter monitoring
- Measuring and monitoring of flow, temperature and conductivity
- Quick and flexible start-up via IO-Link and wireless short-distance communication via radio waves
- Easy adjustment to suit the process by using adapters

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

Type 8619
multiCELL – multi-channel/ multi-function transmitter/ controller

Type 8611
eCONTROL – Universal controller

Type 8025
Insertion flowmeter or batch controller with paddle wheel and flow transmitter or remote batch controller

Type description

The Type 8050 is a compact magnetic-inductive flow measuring device that will help you monitor your processes. Thanks to its compact and robust design, this device is the perfect solution for applications where space needs to be saved. Additional connection adapters simplify integration into the process and the wireless connection makes start-up easier.

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1. General technical data

Product properties	
Material	
Make sure the device materials are compatible with the fluid you are using. Further information can be found in chapter "3.1. Bürkert resistApp" on page 7.	
Non-wetted parts	
Housing	Stainless steel 1.4404/316L, 1.4409/CF3M
Display	PC
Wetted parts	
Pipe connection	Stainless steel 1.4404/316L
Measurement tube	PEEK
Electrode	Stainless steel 1.4435/316L
Temperature sensor	Stainless steel 1.4435/316L
Seal	FKM or EPDM
Display	1.4" TFT (thin-film-transistor) colour display with back-lighting, auto-rotatable (dependent on orientation)
Pipe diameter	• DN 15...DN 50 • ½"...2"
Dimensions	Further information can be found in chapter "4. Dimensions" on page 7.
Weight	• DN 15 (½"): 0.34 kg • DN 20 (¾"): 0.35 kg • DN 25 (1"): 0.36 kg • DN 50 (2"): 1.55 kg
Measuring element	Electrodes
Measuring principle	Electromagnetic Further information can be found in chapter "6.1. Measuring principle" on page 9.
Measured quantity	• Volume flow rate • Temperature • Conductivity [1)]
Measuring range	
Volume flow rate measurement	• DN 15 (½"): 0.05...35 l/min (0.013...9.2 gal/min) • DN 20 (¾"): 0.1...75 l/min (0.026...19.8 gal/min) • DN 25 (1"): 0.2...150 l/min (0.052...39.6 gal/min) • DN 50 (2"): 1.5...750 l/min (0.4...198.1 gal/min)
Conductivity measurement	• DN 15 (½"): 20...30 000 µS/cm • DN 20 (¾"): 20...30 000 µS/cm • DN 25 (1"): 20...30 000 µS/cm • DN 50 (2"): 20...10 000 µS/cm
Temperature measurement	-10...+70 °C (+14...+158 °F)
Operating mode	• Via wireless technology via radio waves (Wireless Field Device Configurator application) • Via IO-Link
Product accessory	
Adapter and seal	Stainless steel 1.4404/316L and aramid fibre
Performance data	
Response time	Minimum time • 660 ms for analogue output, when damping = 0 • 460 ms for digital output, when damping = 0
Volume flow rate measurement	
Under reference conditions i.e. measuring fluid = water, temperature = +15...+45 °C (+59...+113 °F) and pressure = 2...6 bar (29.00...87.02 PSI)	
Measurement deviation	≤ (± 0.8 % of the measured value) + (± 0.1 % of full scale)
Repeatability	± 0.2 % of the measured value
Temperature measurement	
Measurement deviation	± 2.5 °C (± 4.5 °F)
Repeatability	± 0.5 °C (± 0.9 °F)

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Response time (t90)	Typically 30 s
Conductivity measurement	
Repeatability	(± 5 % of the measured value) + (± 5 µS/cm)
Current output uncertainty [2.]	
Additional error	± 20 µA, at 25 °C ambient temperature
Repeatability	± 10 µA
Voltage output uncertainty [2.]	
Additional error	± 60 mV, at 25 °C ambient temperature
Repeatability	± 10 mV
Electrical data	
Operating voltage	18...30 V DC, filtered and regulated
Power source (not supplied)	Limited power source according to UL/EN 62368-1 standards or limited energy circuit according to UL/EN 61010-1 paragraph 9.4
DC reverse polarity protection	Yes
Overvoltage protection	Yes
Short circuit protection	Yes
Current consumption	• Without outputs IO1 and IO2: 120 mA • With outputs IO1 and IO2: 120 mA plus the effective load currents
Power consumption	Max. 3 W
Input/output	**2 freely selectable inputs/outputs (IO1 and IO2)**
Digital input	Status inputs (e.g. for a totalizer reset) • Minimum pulse duration: 100 ms • High or low active • Switch-on level: 15 V • Switch-off level: 5 V • Internal resistance: 7.5 kΩ
Digital output	• Switch: – PNP (high-side-switch) or NPN (low-side-switch) – switching behaviour of IO1 and IO2: configurable independently of one another – max. load current: 250 mA. • Pulse: – PNP (high-side-switch) – only available for output 1 (IO1) – max. load current: 250 mA. – max. pulse rate: 10 000 Pulse/s • IO-Link: – only available for output 1 (IO1)
Analogue output	• Current outputs (4...20 mA) – The maximum load may not exceed 500 Ω. A bigger load distorts the output signal. • Voltage output (2...10 V) – The minimum load may exceed 600 Ω. A smaller load distorts the output signal.
Fault signal	• Status signal (as per NAMUR Recommendation NE 107) • Plain text display with remedial action
Connection cable	At least 0.12 mm² (AWG26) cross-section
Medium data	
Fluid temperature	• -10...+ 70 °C (+ 14...+ 158 °F) • Permissible short-term temperature: + 85 °C (+ 185 °F) maximum one hour every four hours • Permissible short-term temperature with electronics switched off: + 100 °C (+ 212 °F) maximum one hour every four hours
Fluid pressure	Max. 16 bar (232 PSI), relative
Minimum conductivity	10 µS/cm
Process/Pipe connection and communication	
Pipe connection	• External thread G ½", G ¾", G 1" or G 2" • Internal thread NPT ½", NPT ¾", NPT 1" or NPT 2"
Electrical connection	M12 × 1 A-coded, male

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Digital communication: IO-Link	
Communication interface	• IO-Link device V1.1 • IO-Link Smart Sensor Profile 2nd Edition
SIO mode	Yes
Data transfer rate (Baud rate)	COM 2 (38.4 kBd)
Cycle time	Min. 10 ms
Process data width	120 bit
IO-Link data storage	Yes
Block configuration	No
Device operational	Operational four seconds after the supply voltage is applied
IO device description (IODD)	The device description is available in the operating instructions which can be found on our website under the "User Manuals" heading for **Type 8050** ▶. Alternatively, see "Device Description Files" under the "Software" heading for **Type 8050** ▶ or at **https://ioddfinder.io-link.com**
Approvals and conformities	
Directives	
CE directive	Further information on the CE Directive can be found in chapter "2.3. Standards" on page 6.
Pressure equipment directive	Complying with article 4, paragraph 1 of 2014/68/EU directive Further information on the pressure equipment directive can be found in chapter "2.4. Pressure Equipment Directive (PED)" on page 6.
North America (USA/Canada)	UL Listed for the USA and Canada
Drinking water	On request: Drinking water conformity certificate
Others	• UKCA marking • On request: radio certification (for instance for Europe: Telecommunications Directive RED 2014/53/EU and with other certifications in countries such as Argentina, Australia and New Zealand, Canada, United States, etc.)
Environment and installation	
Ambient temperature	• Operation: -10...+60 °C (+14...+140 °F) • Storage: -25...+85 °C (-13...+185 °F)
Relative air humidity	≤ 100 % (wet and damp locations)
Height above sea level	Max. 2000 m
Operating condition	Continuous
Equipment mobility	Fixed
Application range	Indoor and outdoor Protect the device against electromagnetic interference, ultraviolet rays and against the effects of climatic conditions.
Degree of protection according to IEC/EN 60529	IP65/IP67
Installation category	Category II according to UL/EN 61010-1
Pollution degree	Degree 3 according to UL/EN 61010-1

1.) Conductivity measurement is possible with this device, but even if the measurement is reliable it is only indicative. The device must not be used as a conductivity meter.
2.) The deviation of the measurement at the outputs can increase depending on the device configuration.

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2. Approvals and conformities

2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants can be supplied with the below mentioned approvals or conformities.

2.2. Conformity

In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

2.4. Pressure Equipment Directive (PED)

The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions:

Device used on a pipe

Note:

- The data in the table is independent of the chemical compatibility of the material and the fluid.
- PS = maximum admissible pressure, DN = nominal diameter of the pipe

Type of fluid	Conditions
Fluid group 1, Article 4, Paragraph 1.c.i	DN ≤ 25
Fluid group 2, Article 4, Paragraph 1.c.i	DN ≤ 32 or PS*DN ≤ 1000
Fluid group 1, Article 4, Paragraph 1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, Article 4, Paragraph 1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

2.5. North America (USA/Canada)

Approval	Description
c UL us LISTED	**Optional: UL Listed for the USA and Canada** The products are UL Listed for the USA and Canada according to: • UL 61010-1 (ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE – Part 1: General Requirements) • CAN/CSA-C22.2 No. 61010-1

2.6. Drinking water

Conformity	Description
H_2O	**Optional: Certification according to KTW-BWGL** The materials comply with the with KTW-BWGL for materials in contact with drinking water. Suitable for products with a maximum temperature of 85 °C (hot water)

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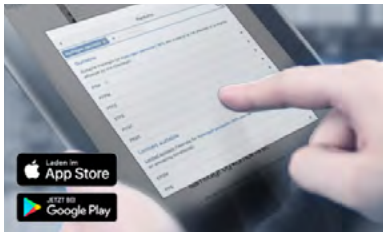
3. Materials

3.1. Bürkert resistApp



Bürkert resistApp – Chemical resistance chart

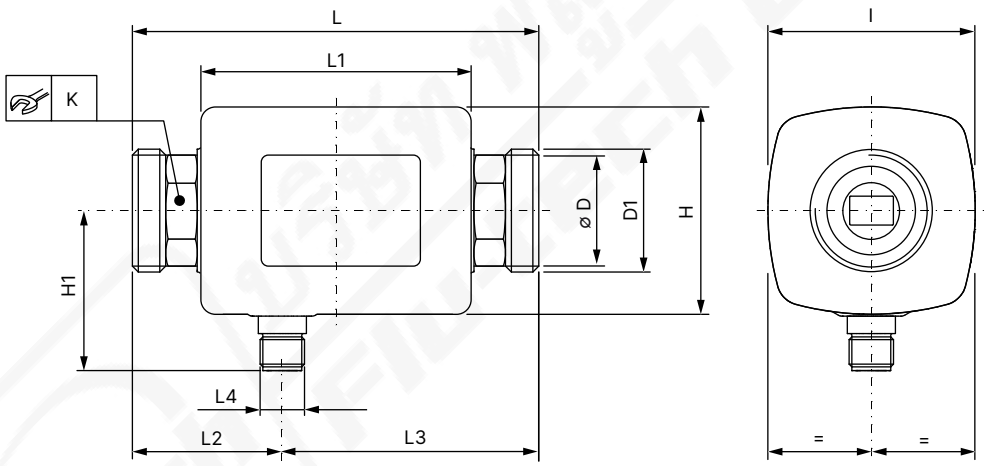
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start chemical resistance check

4. Dimensions

4.1. Flowmeter with external thread pipe connection

Note:
Dimensions in mm, unless otherwise stated



DN	H	H1	L	L1	L2	L3	Ø D	D1 [inch]	I	K
15	56	43	110	73	40.5	M12 × 1	12	G ½"	56	AF 24
20	56	43	110	73	40.5	M12 × 1	15	G ¾"	56	AF 27
25	56	43	110	73	40.5	M12 × 1	15	G 1"	56	AF 27
50	86	58	200	113	80	M12 × 1	43	G 2"	86	AF 52

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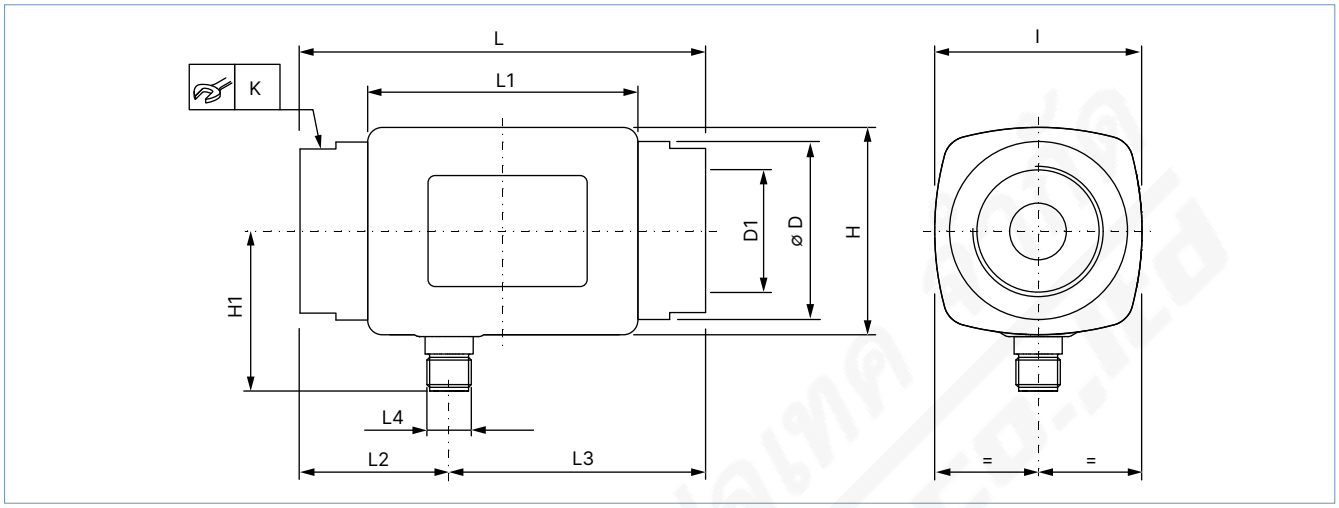
4.2. Flowmeter with internal thread pipe connection

Note:
Dimensions in mm, unless otherwise stated



DN	H	H1	L	L1	L2	L3	L4	Ø D	D1 [inch]	I	K
15	56	43	110	73	40.5	69.5	M12 × 1	29.5	NPT ½"	56	AF 27
20	56	43	110	73	40.5	69.5	M12 × 1	36	NPT ¾"	56	AF 32
25	56	43	110	73	40.5	69.5	M12 × 1	42	NPT 1"	56	AF 41
50	86	58	180	113	80	120	M12 × 1	73.5	NPT 2"	86	AF 70

5. Product installation

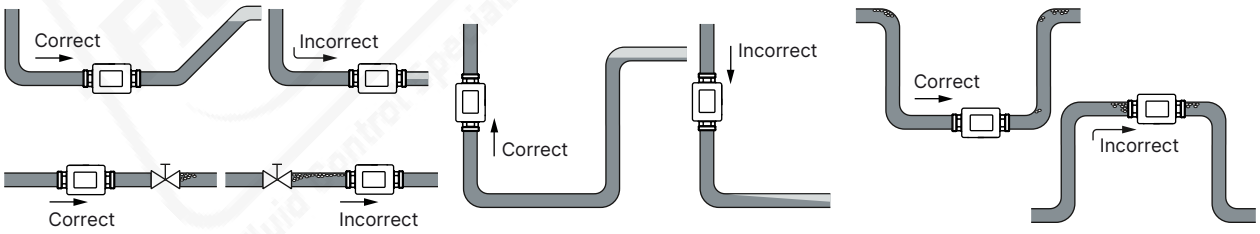
5.1. Installation notes

Flow measurement

Note:
The device is not suitable for use in gaseous media and steam.

- During flowmeter operation the pipe must be completely full.
- No upstream and downstream distances need to be considered.

The sensor can be installed into either horizontal or vertical pipes. All correct installation positions described in the following allow accurate flow measurement. However, we recommend that you install the sensor in an **ascending** pipe for optimal flow measurement.



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6. Product operation

6.1. Measuring principle

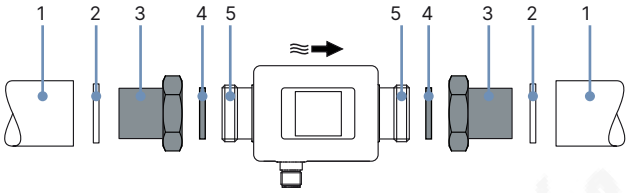
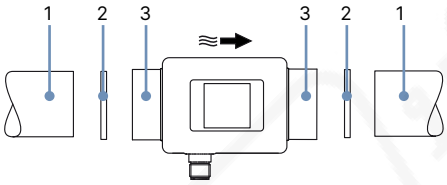
Faraday's law serves as the physical basis for magnetic flow measurement.
Magnetic coils are arranged around the pipeline to generate a magnetic field. Conductive liquids flowing through the magnetic field induce a voltage at two opposite metallic electrodes in contact with the medium. These electrodes are used to measure the induced electrical alternating voltage.

7. Product accessories

Note:

- The installation of the flowmeter in a pipe requires the use of adapters and seals, depending on the device variant.
- The drawings show the assembly with both variants of the device.

See "8.4. Ordering chart accessories" on page 11 for more information.

Accessories	No.	Description
	1	Pipe with internal thread connection
	2	Seal (not supplied; use suitable commercially available seal material.)
	3	Adapter Further information can be found in chapter "8.4. Ordering chart accessories" on page 11.
	4	Seal (included in delivery, see also chapter "8.4. Ordering chart accessories" on page 11.)
	5	External thread connection of the flowmeter
	1	Pipe with conical external thread connection
	2	Seal (not supplied; use suitable commercially available seal material.)
	3	Internal thread connection of the flowmeter

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8. Ordering information

8.1. Bürkert eShop

Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

8.2. Bürkert product filter

Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements?
Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

8.3. Ordering chart

Note:
The following variants have at least

- a pipe connection in stainless steel
- a measurement tube in PEEK
- electrodes and a temperature sensor in stainless steel

DN	Measuring range			Pipe connection	Seal material	Article no.
[mm]	Volume flow rate	Temperature	Conductivity			
Flowmeter with external (male) thread pipe connection						
15	0.05...35 l/min (0.013...9.2 gal/min)	-10...+70 °C (+14...+158 °F)	20...30 000 µS/cm	G ½"	FKM	571164
					EPDM	571165
20	0.1...75 l/min (0.026...19.8 gal/min)		20...30 000 µS/cm	G ¾"	FKM	571172
					EPDM	571173
25	0.2...150 l/min (0.052...39.6 gal/min)		20...30 000 µS/cm	G 1"	FKM	571180
					EPDM	571181
50	1.5...750 l/min (0.4...198.1 gal/min)		20...10 000 µS/cm	G 2"	FKM	571188
					EPDM	571189
Flowmeter with internal (female) thread pipe connection						
15	0.05...35 l/min (0.013...9.2 gal/min)	-10...+70 °C (+14...+158 °F)	20...30 000 µS/cm	NPT ½"	FKM	571166
					EPDM	571167
20	0.1...75 l/min (0.026...19.8 gal/min)		20...30 000 µS/cm	NPT ¾"	FKM	571174
					EPDM	571175
25	0.2...150 l/min (0.052...39.6 gal/min)		20...30 000 µS/cm	NPT 1"	FKM	571182
					EPDM	571183
50	1.5...750 l/min (0.4...198.1 gal/min)		20...10 000 µS/cm	NPT 2"	FKM	571190
					EPDM	571191

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8.4. Ordering chart accessories

Description		Article no.
Adapter set [1] suitable for flowmeter with external thread pipe connection		
G ½" to G ⅜" external thread		571196
G ½" to R ⅜" external thread		571197
G ½" to G ½" internal thread		571198
G ½" to R ½" external thread		571199
G ½" to ½" clamp, Ø 25 mm, BS4825 (similar DIN 32676 series C and ASME BPE)		571200
G ¾" to R ¾" external thread		571201
G ¾" to G ¾" internal thread		571202
G ¾" to ¾" clamp, Ø 25 mm, BS4825 (similar DIN 32676 series C and ASME BPE)		571203
G 1" to R 1" external thread		571204
G 1" to G 1" internal thread		571205
G 1" to 1" clamp, Ø 50 mm, BS4825 (similar DIN 32676 series C and ASME BPE)		571206
G 2" to R 1½" external thread		571207
G 2" to R 2" external thread		571208
G 2" to G 1½" external thread		571209
G 2" to G 2" internal thread		571210
G 2" to 2" clamp, Ø 64 mm, BS4825 (similar DIN 32676 series C and ASME BPE)		571211
Seal set suitable for flowmeter with external thread pipe connection		
Aramid fibre seal	DN 15	571218
	DN 20	571219
	DN 25	571220
	DN 50	571221
Electrical connection		
M12 female connector with cable in PUR (Polyurethane), 4-pin, straight, 4 × 0.34 mm²	2 m	571222
	5 m	571223
	10 m	571224
M12 female connector with cable in PUR (Polyurethane), 4-pin, angled (90°), 4 × 0.34 mm²	2 m	571225
	5 m	571226
	10 m	571227
Ground terminal set		
Ground terminal		571217

1.) Made of Stainless steel 4404/316L. The corresponding seal made of aramid fibre is also supplied.

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