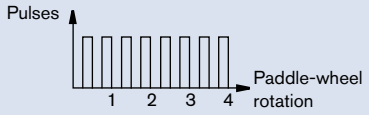
8012 with optical (standard) or magnetic (on request) principle

Version with Transistor output

- Transistor output: NPN (standard) or PNP (on request) operation
- With one configured transistor output mode (4 possibilities)
  - Raw frequency (standard) - (2 pulses per paddle wheel rotation)
  - Proportional frequency (on request) - (e.g. 5 pulses per litre)
  - Switching mode
    - 2 switching modes for the output, either hysteresis or window, inverted or not, depending on transistor output version
    - Configurable delay before switching
  - Detection of flow direction - only with optical principle

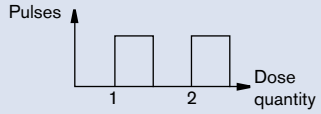
Raw frequency

Pulse length:
- 50% ON
- 50% OFF



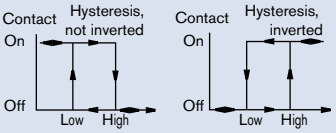
Proportional frequency

Pulse length:
- 50% ON
- 50% OFF

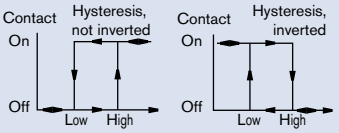


Hysteresis operation

NPN wiring

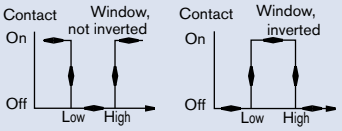


PNP wiring

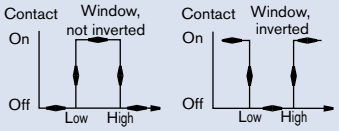


Window operation

NPN wiring



PNP wiring



Version with Transistor and current outputs

Transistor output:

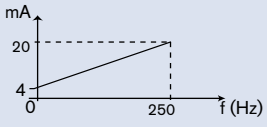
- Same features described above

Current output:

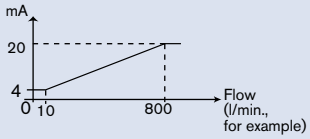
- with sinking (standard) or sourcing (on request) wiring
- 8012 with configurable current output
  - 4 - 20 mA current corresponding to paddle wheel frequency (0 - 250 Hz) - (standard)
  - 4 - 20 mA current corresponding to a flow range - (on request)
  - Damping of fluctuation of current output through filter function
  - Generation of an alarm current (22 mA) - when fluid circulation is opposite to the direction indicated by the arrow on the side of the housing (only versions with optical principle) or when full scale has been exceeded (versions with optical or magnetic principle)

Paddle-wheel frequency

and Q = f/K
where Q: flow rate [l/s]
f: frequency [Hz]
K: K-factor [pulse/litre]



Flow range



Ordering Chart

For Type 8012, 12 - 36 V DC, 5-pin M12											
Process connection	**Standard**	**Output**	**Item no. DN 06 - 1/4”**	**Item no. DN 06 - 1/2”**	**Item no. DN 08 - 1/2”**	**Item no. DN 15**	**Item no. DN 20**	**Item no. DN 25**	**Item no. DN 32**	**Item no. DN 40**	**Item no. DN 50**
Brass - Medium temperature max. 100 °C, PN16											
Internal thread	G (ISO 228)	Pulse + 4 - 20 mA	–	–	–	556 012	556 013	556 014	556 015	556 016	556 017
External thread	G (ISO 228)	Pulse + 4 - 20 mA	556 009	556 010	556 011	–	–	–	–	–	–
Stainless steel - Medium temperature max. 100 °C, PN16											
Internal thread	G (ISO 228)	Pulse + 4 - 20 mA	–	–	–	556 054	556 055	556 056	556 057	556 058	556 059
External thread	G (ISO 228)	Pulse + 4 - 20 mA	556 051	556 052	556 053	–	–	–	–	–	–

Accessories

Specification	Item no.
4 short screws (M4 x 35 - A4) + 4 long screws (M4 x 60 -A4)	555 775
5-pin M 12 female connector moulded on cable (2 m, shielded)	438 680
5-pin M 12 female connector with plastic threaded locking ring	917 116
O-ring set for metal fitting - FKM - DN 06 to 50	426 340

INSERTION paddle wheel flowmeter for continuous flow measurement

- Economic integration in pipe systems without any additional piping
- 3-wire frequency pulse version to directly interface with PLC's (both PNP and NPN)
- Connection to Bürkert devices in remote versions

The paddle wheel flowmeter for continuous flow measurement is especially designed for use in neutral, slightly aggressive, solid free liquids.

The Bürkert designed fitting system ensures simple installation of the devices into all pipes from DN20 to DN400 mm. The flowmeter produces a frequency pulse signal, proportional to the flow rate, which can easily be transmitted and processed by a Bürkert transmitter/controller.

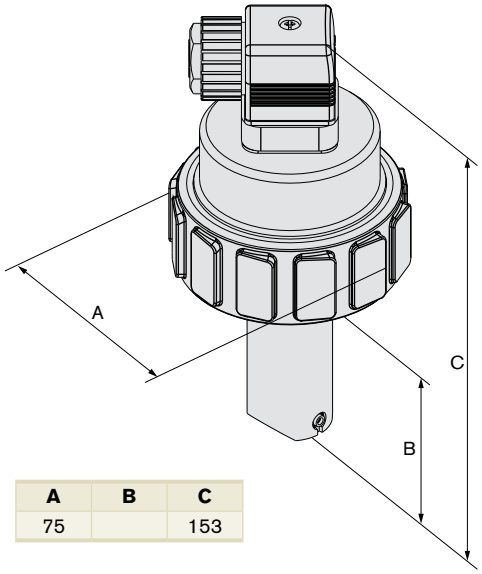
Technical Data

General data	
Compatibility	With fittings S020 (see datasheet)
Materials	
Housing / Union nut	PE / PC
Cable plug	PA
Wetted parts materials	
Fitting	Brass, st. st. 1.4404/316L, PVC, PP, PVDF
Sensor armature, paddle wheel	PVDF
Axis, bearing / Seal	Ceramics / FKM (EPDM option)
Electrical connection	Cable plug EN 175301-803 (included)
Connection cable	1.5 mm² cross section; Max. 50 m length, shielded
Complete device data (fitting + electronic module)	
Pipe diameter	DN20-400 mm
Measuring range	0.3 to 10 m/s
Medium temp. with fitting in	
PVC / PP	0 °C to +50 °C / 0 °C to +80 °C
Stainless steel, brass, PVDF	-15 °C to +80 °C
Medium pressure max.	PN10 *(145.1 PSI)*
Viscosity / Pollution	300 cSt. max. / max. 1% (Size of particles 0.5 mm max.)
Accuracy	
Teach-In	±0.5% of F.S.* (at 10 m/s)[1)]
Standard K-factor	±(0.5% of F.S.* + 2.5% of Reading)[1)]
Linearity	±0.5% of F.S.* (at 10 m/s)[1)]
Repeatability	≤ 0.4% of Reading[1)]
Environment	
Ambient temperature	-15 to 60 °C (5 to 140 °F) (operating and storage)
Relative humidity	≤ 80%, without condensation

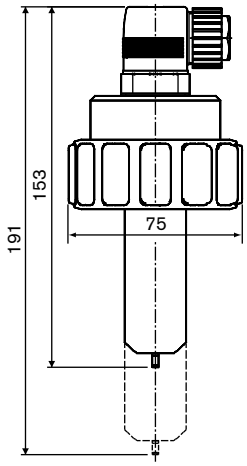
* F.S. = Full scale (10 m/s)

[1)] Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

Envelope Dimensions [mm] (see datasheet for details)



A	B	C
75		153



Note:
The length of the sensor armature depends on the fitting used. See data sheet Type S020.

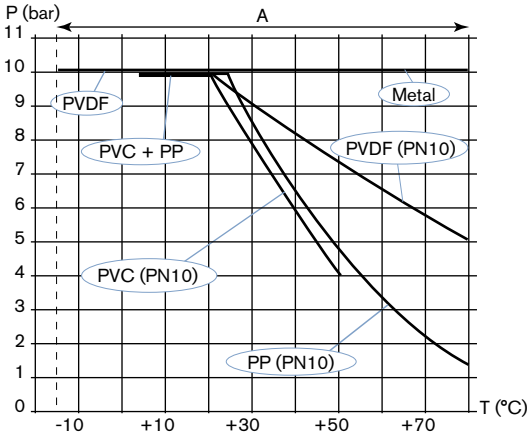
Technical Data (continued)

Electrical data	
Operating voltage	12 - 36 V DC (via Bürkert transmitter for "Low Power" version)
Current consumption	with sensor
Pulse version	≤ 50 mA
Pulse "Low power" version	≤ 0.8 mA
Output: Frequency	
Pulse version	Transistor NPN/PNP, open collector, max. 100 mA, frequency: 0... 300 Hz; duty cycle 1/2
Pulse "Low Power" version	Transistor NPN, open collector, max. 10 mA, frequency: 0... 300 Hz; duty cycle 1/2
Reversed polarity of DC	Protected
Standards and approvals	
Protection class	IP65 with connector plugged-in and tightened
Standard and directives	
EMC	EN 61000-6-2, 61000-6-3
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	DN25 only
Fluid group 2, §1.3.a	DN ≤ 32 or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	DN ≤ 25 or DN > 25 and PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 400

Pressure / temperature chart



A: Application range for complete device (fitting + flowmeter)

Ordering Chart

Description	Operating voltage	Output	Sensor version	Electrical connection	Item no.
Pulse version flowmeter (pluggable to Types 8025 Universal transmitter, batch controller; 8032; PLC)	12 - 36 V DC	Frequency with PNP or NPN	short	Cable plug DIN EN 175301-803	419 587
			long	Cable plug DIN EN 175301-803	419 589
Pulse "Low Power" version flowmeter (pluggable to Types 8025, 8032 transmitter)	from Transmitter	Frequency with NPN Pulse	short	Cable plug DIN EN 175301-803	419 591
			long	Cable plug DIN EN 175301-803	419 593

Note regarding the ordering of a complete sensor:

The complete 8020 sensor consists of the Type S020 INSERTION fitting and the Type 8020 sensor.

FKM seal in standard; 1 Kit including a black EPDM seal and a green FKM seal is supplied with each sensor.

Please order the relevant INSERTION fitting and the sensor separately!

Accessories

Description	Item no.
Set with 1 green FKM and 1 black EPDM gasket	552 111
Ring	619 205
Union nut	619 204
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT 1/2" reduction without cable gland (Type 2509)	162 673

Compact INSERTION Batch Controller

- DN06-400 mm
- 4-20 mA output
- On-site calibration by TEACH-IN
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed

The compact batch controller combines a paddle-wheel flow sensor and an electronic module with a display in an IP65 enclosure. The electrical connection is provided via two cable glands.

Bürkert designed fitting S020 ensures simple installation of the Bürkert sensor into pipes from DN20 to DN400.

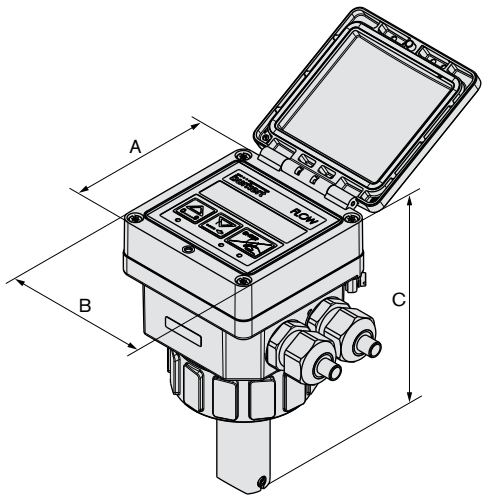
Technical Data

General data	
Compatibility	With fittings S020 (see corresponding data sheet)
Materials	
Housing, cover, lid, nut	PC
Front panel foil / Screws	Polyester / Stainless steel
Cable glands	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder, paddle-wheel	PVDF
Axis and bearing / Seal	Ceramics / FKM (EPDM option)
Electrical connections	Cable glands M20 x 1.5, max. 50 m protected cable with 1.5 mm ² max. cross-section
Device data (Fitting S020 + batch controller)	
Pipe diameter	DN20 to 400 mm
Measuring range	0.3 to 10 m/s (Hall transducer version)
Fluid temperature with fitting in	
PVC / PP	0 °C to +50 °C / 0 °C to +80 °C
PVDF, brass or stainless steel	-15 to +80 °C
Fluid pressure max.	PN10 (see pressure/temperature in datasheet)
Viscosity / Pollution	300 cSt. max. / 1% max.
Measurement error	
Teach-In	±1% of Reading[1] (at the teach flow rate value)
Standard K-factor	±2.5% of Reading[1]
Linearity	±0.5% of F.S.[1]
Repeatability	±0.4% of Reading[1]
Environment	
Ambient temperature (operation and storage)	-10 to +60 °C (version 12 - 36 V DC) -10 to +50 °C (version 115/230 V AC)
Height above sea level	max. 2000 m
Relative humidity	≤ 80%, without condensation

* F.S.=Full scale (10 m/s)

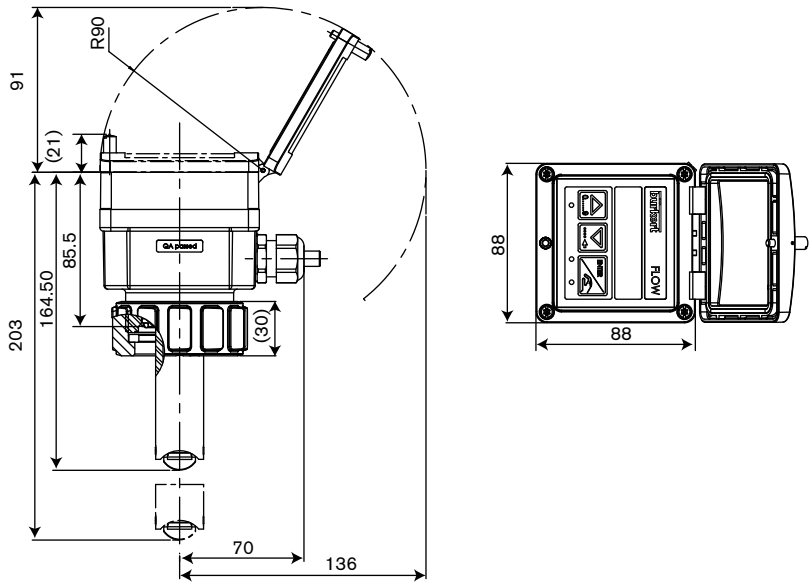
[1] Under reference conditions i.e. measuring fluid=water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions

Envelope Dimensions [mm] (see datasheet for details)



A	B	C
88	88	164,50 (203)

Envelope Dimensions [mm] (see datasheet for details)



Technical Data (continued)

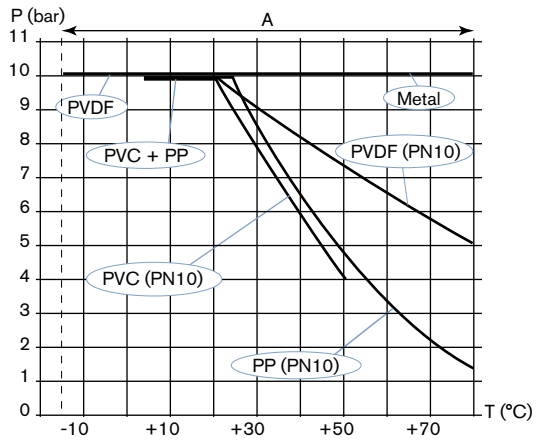
Electrical data	
Power supply (V+)	12 - 36 V DC (max tolerance: -5% or +10% at 12 V DC; ±10% at 36 V DC), filtered and regulated, SELV (safety extra low voltage), circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of digital input and pulse output)	with relays ≤ 90 mA at 12 V DC; ≤ 45 mA at 36 V DC
Inputs DI (1 to 4)	Switching threshold Von: 5... 36 V DC; Switching threshold Voff max: 2 V DC; Input impedance: 9.4 KOhms; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs	
Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6 - 2200 Hz, 5 - 36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100% of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated, max. current: 125 mA integrated protection: fuse 125 mA temporised power: 3 VA
Standards, directives and approvals	
Protection class (according to EN60529)	IP65 with cable gland mounted and tightened or with obturator locked if not used.
Standards and directives Pressure	Complying with article 3 of chap. 3 from 97/23/CE directive*
Approvals	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22 No.61010-1)

* F.S.=Full scale (10 m/s)

[1] Under reference conditions i.e. measuring fluid=water, ambient and water temperature = 20 °C (68 °F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions

Pressure / temperature chart



A: Application range for complete device (fitting + flowmeter)

Operation and display (common to the various versions)

When mounted in a pipe (compact version) or connected to a flowmeter (remote version) in series with one or two valves, the 8025 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.
The electronic component needs a voltage supply of 12 - 36 V DC or 115/230 V AC.
The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100% of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.
The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- **Locally started dosing of free quantity:**
  the user enters the quantity to be filled and starts the dosing from the keypad.
- **Locally started dosing of preset quantity:**
  the user selects a quantity which has been preset and starts the dosing from the keypad.
- **Locally started dosing of free/preset quantity**
  the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.
- **Dosing controlled by a PLC unit**
  the user selects a quantity which has been preset and starts the dosing using binary inputs.
- **Locally/remote selection of preset quantity and dosing controlled by a PLC unit:**
  the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.
- **Automatic dosing controlled by variation of pulse duration:**
  the quantity of the dosing is directly proportional to the duration of a pulse.
- **Remote dosing determined by Teach-In:**
  Teach-In of the dosing quantity using binary inputs.
- **Local dosing determined by Teach-In:**
  Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.
User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/display	Parameter definition	Test	Information	History
▪ dosing amount ▪ dosing mode ▪ main quantity totalizer ▪ daily quantity totalizer with reset function ▪ main batch totalizer ▪ daily batch totalizer with reset function	▪ language ▪ engineering units ▪ K-factor/Teach-In function ▪ selection of dosing mode ▪ over run correction ▪ alarm ▪ outputs configuration ▪ reset both quantity/batch totalizers (main and daily) ▪ Brightness of the display (backlight)	▪ input test ▪ output test ▪ frequency test ▪ warning and fault messages generating ▪ configuration mode	▪ Display of error, alarm and/or warning messages	▪ Display of the 10 latest batches

Ordering Chart

Description	Voltage supply	Relay	Sensor version	Electrical connection	Item no.
Compact Batch Controller Type 8025B					
2 totalizers	12 - 30 V DC	2	Hall, short	2 cable glands	419 520
			Hall, long	2 cable glands	419 522
	115 - 230 V AC	2	Hall, short	2 cable glands	419 521
			Hall, long	2 cable glands	419 529

Accessories

Description	Item no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449 755
Set with 2 reductions M20 x 1.5 /NPT1/2" + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551 782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551 775
Ring	619 205
Union nut	619 204
Set with 1 green FKM and 1 black EPDM seal	552 111

Batch Controller for panel or wall mounting

7 batch sizes, 2 relay outputs

- Controls 7 batches automatically
- Fast fill and fine control for accuracy
- Shows both flow rate and volume

See flow sensor 8020, 8030, 8070

The remote 8025 batch controller can be connected (with pulse output signal) with Bürkert flowmeters Type 8020, 8030, 8070 or other flow sensor devices which emit a frequency signal.

The remote 8025 is a batch controller with display, available in wall-mounted and panel versions:

The panel version
is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronics board

The wall-mounted version
is made up of an electronics board which is integrated in a housing with a cover and display. The electrical connection is made via the terminal blocks of the electronic board via 5 cable glands.

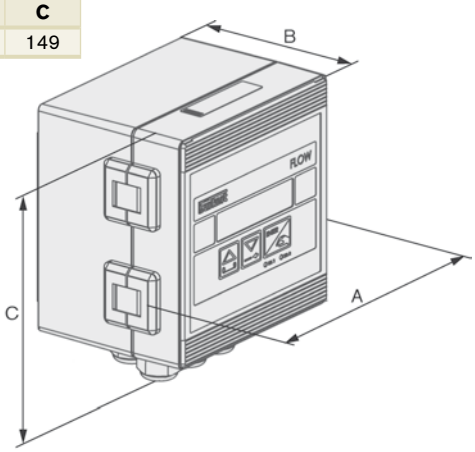
Technical data

Housing material	ABS, PC*
Front panel foil	Polyester
Screws	Stainless Steel
Cable gland	PA
Ambient temperature	-10 °C to +60 °C
Display	15 x 60 mm, 8–digit LCD, alphanumeric, 15 segments, 9 mm high
Voltage supply	12–30 V DC or 115/230 V AC, 50-60 Hz
Current consumption with sensor	(without consumption of 4-20 mA output of the flowmeter) ≤ 90 mA (bei 12 V DC); ≤ 45 mA (bei 36 V DC) ≤ 55 mA (115/230 V AC)
Electrical protection	Reversed polarity of DC protected
Compatibility with Bürkert sensors	Any Bürkert flow sensor with frequency output (8020, 8030, 8030HT, 8041, 8031, 8070, 8071)
Compatibility with other sensors	Any open collector NPN, coil, TTL, CMOS
Electrical connections	Terminal strip (cabinet mounting version) or terminal strip by threaded connections (version wall mounting) Cable glands M20 x 1.5, max. 50 m protected cable with 1.5 mm ² max. cross-section
Recommended cable	0.2 to 1.5 mm² cross-section, shielded cable, 4... 8 mm diameter (for the cable glands of the wall-mounted version)

Envelope Dimensions [mm] (see datasheet for details)

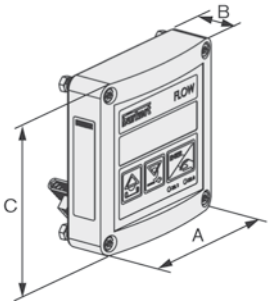
Wall Mount

A	B	C
126	90	149



Panel Mount

A	B	C
88	25	88



Outputs	2 relays, freely programmable, 3A, 230 V AC
Flow input frequency	2.5 Hz up to 700 Hz
Sensor power supply	12-30 or 0-18 V DC, 100 mA max. (24 V DC Version); +15 V DC or +27 V DC , 25 mA max. (115 V AC version)
Ingress protection	IP65, IP65 (front)*

* Panel mount version.

Optionv

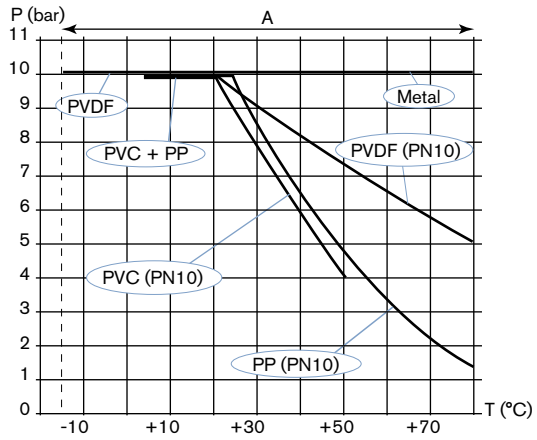
- Compact inline mount

Technical data (continued)

Electrical data	
Power supply (V+)	
Panel- and wall-mounted version	12 - 36 V DC (max tolerance: -5% or +10% at 12 V VC; ±10% at 36 V DC), filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level, 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Wall-mounted version	
Reversal polarity of DC	Protected
Current consumption	(without consumption of current output of the flowmeter)
with sensor	≤ 90 mA (at 12 V DC); ≤ 45 mA (at 36 V DC); ≤ 55 mA (115/230 V AC)
Controller input	
(from sensor)	0.6 Hz to 2.2 kHz, max. voltage: 36 V DC Open collector NPN (with 470 Ω or 2.2 kΩ resistance) or PNP, Coil, TTL, CMOS (with 39 kΩ resistance)
Frequency range	
Controller output	
(to sensor)	- with a 12 - 36 V DC powered controller: ■ 10.5... 34.5 V DC [=(V+) - 1.5 V DC], 140 mA max. ■ 0... 23.5 V DC [=(V+) - 12.5 V DC], 80 mA max. non regulated ■ 5 V DC, 30 mA max. - with a 115/230 V AC powered controller: ■ +27 V DC, 80 mA max. ■ +14.5 V DC [=(V+) - 12.5 V DC] 80 mA max. non regulated ■ 5 V DC, 30 mA max.
Voltage supply	
Inputs DI (1 to 4)	Switching threshold Von: 5... 36 V DC; Switching threshold Voff max: 2 V DC; Input impedance: 9.4 KOhms; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs	
Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), state (by default for DO4), configurable and parameterizable 0.6 - 2200 Hz, 5 - 36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz
Relays (DO2 and DO3)	Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits 2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100% of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

Technical specifications 115/230 V AC	
Supply voltage	Wall-mounted version:
available inside the device	Voltage supply: 27 V DC regulated, Max. current: 250 mA Integrated protection: fuse 250 mA temporised Power: 6 VA
Standards, directives and approvals	
Protection class	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
(according to EN60529)	
Approvals	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22 No.61010-1)

Pressure / temperature chart



A: Application range for complete device (fitting + flowmeter)

Operation and display (common to the various versions)

When mounted in a pipe (compact version) or connected to a flowmeter (remote version) in series with one or two valves, the 8025 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.
The electronic component needs a voltage supply of 12 - 36 V DC or 115/230 V AC.
The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100% of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.
The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- **Locally started dosing of free quantity:**
  the user enters the quantity to be filled and starts the dosing from the keypad.
- **Locally started dosing of preset quantity:**
  the user selects a quantity which has been preset and starts the dosing from the keypad.
- **Locally started dosing of free/preset quantity**
  the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.
- **Dosing controlled by a PLC unit**
  the user selects a quantity which has been preset and starts the dosing using binary inputs.
- **Locally/remote selection of preset quantity and dosing controlled by a PLC unit:**
  the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.
- **Automatic dosing controlled by variation of pulse duration:**
  the quantity of the dosing is directly proportional to the duration of a pulse.
- **Remote dosing determined by Teach-In:**
  Teach-In of the dosing quantity using binary inputs.
- **Local dosing determined by Teach-In:**
  Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.
User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/ display	Parameter definition	Test	Information	History
▪ dosing amount ▪ dosing mode ▪ main quantity totalizer ▪ daily quantity totalizer with reset function ▪ main batch totalizer ▪ daily batch totalizer with reset function	▪ language ▪ engineering units ▪ K-factor/Teach-In function ▪ selection of dosing mode ▪ over run correction ▪ alarm ▪ outputs configuration ▪ reset both quantity/batch totalizers (main and daily) ▪ Brightness of the display (backlight)	▪ input test ▪ output test ▪ frequency test ▪ warning and fault messages generating ▪ configuration mode	▪ Display of error, alarm and/or warning messages	▪ Display of the 10 latest batches

Ordering Chart

Description	Totalizers	Relays	Connection	Item no.	
				12 - 30 V DC	115 - 230 V AC
Wall mount	2	2 x 3 A	5 x PG 13.5 cable gland	433 740	433 741
Panel mount (CSA)	2	2 x 3 A	Terminal strip	419 536	–

Digital flowmeter INSERTION COMPACT

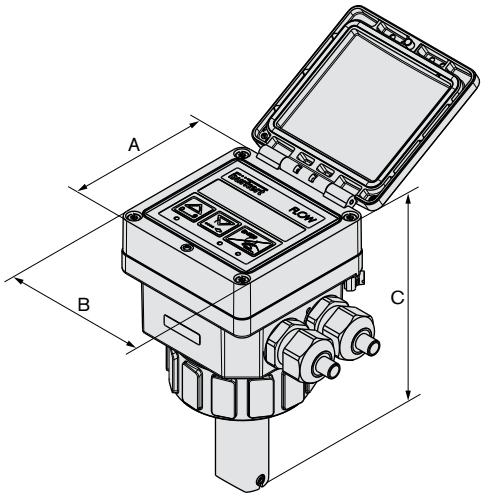
- Compact version for DN06 to DN400 mm, PN10
- Displays both flow rate and volume (with two totalizers)
- On site calibration by Teach-In
- Simulation of all output signals

The compact flowmeter with paddle wheel sensor is specially designed for use with neutral and slightly aggressive, solid-free liquids.

Technical Data

Technical Data	
Display	15 x 60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	with Fittings S020 (see Type S020)
Materials	
Housing, cover, lid, nut	PC
Front panel foil/ Screws	Polyester/Stainless steel
Cable plug or glands	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder, paddle-wheel	PVDF
Axis and bearing/Seal	Ceramics / FKM (EPDM option)
Electrical connections	Cable plug or cable glands M20 x 1.5 or none (for battery version)
Recommended cable	Max. 50 m, shielded, 1.5 mm^2 max. cross-section
Device data (Fitting S020 + flowmeter)	
Pipe diameter	DN20 to DN400
Measuring range	0.5 to 10 m/s (Battery version - Coil transducer) 0.3 to 10 m/s (Hall transducer version)
Fluid temperature with fitting in	0 °C to 50 °C (32 to 122°F) / 0 °C to 80 °C (32 to 176°F)
PVC / PP	
PVDF, brass or stainless steel	-15 °C to 80 °C[1] (5 to 176°F)
Fluid pressure max.	PN10 (145.1 PSI) (see pressure/temperature diagram)
Viscosity / Pollution	300 cSt. max. / 1% max.
Measurement error	
Teach-In	±1% of Reading[1] (at the teach flow rate value)
Standard K-factor	±2.5% of Reading[1]
Linearity	±0.5% of F.S.*[2]
Repeatability	±0.4% of Reading[2]

Envelope Dimensions [mm] (see datasheet for details)



A	B	C
88	88	164.5

Electrical data	
Power supply (V+)	
Standard signal version	12 - 36 V DC ±10%, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Battery indicator/ totalizer version	2 x 9 V DC batteries, lifetime min. 1 year at 20 °C (68°F)
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of pulse output)	≤ 70 mA at 12 V DC - flowmeter with relays ≤ 25 mA at 12 V DC - flowmeter without relay

Technical Data (continued)

Output	
Standard signal version	
Signal current	4... 20 mA (3-wire with relays; 2-wire without relay) max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
Pulse	Polarized, potential free, 5... 36 V DC; 100 mA, protected, line drop at 100 mA: 2.5 V DC
Relay	2 relays, freely configurable, 3 A, 230 V AC
Battery indicator/ totalizer version	None
4... 20 mA measurement error	±1%
Environment	
Height above sea level	Max. 2000 m
Relative humidity	≤ 80%, without condensation
Ambient temperature (operation and storage)	-10 to +60 °C (32 to 140°F) (version 12 - 36 V DC) -10 to +50 °C (32 to 122°F) (version 115/230 V AC)
Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated, max. current: 125 mA integrated protection: fuse 125 mA temporised power: 3 VA

Standards, directives and approvals	
Protection class (according to EN60529)	IP65 with cable plug or gland mounted and tightened or with obturator locked if not used
Standards and directives	
Pressure	Complying with article 3 of chap. 3 from 97/23/CE directive*
Standard	
EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 61010-1
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

* F.S.=Full scale (10 m/s)
[1] with Battery version = 100 °C (212°F)
[2] Under reference conditions i.e. measuring fluid=water, ambient and water temperature=20 °C (68°F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

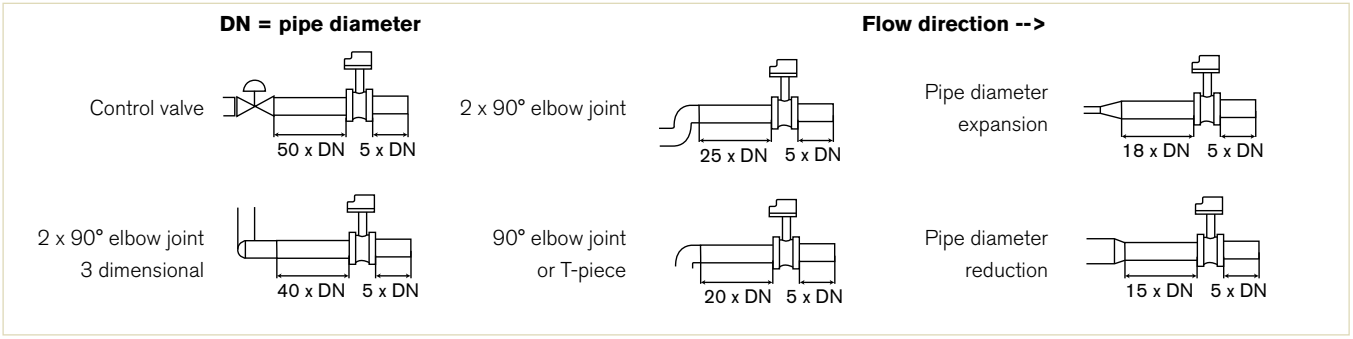
Type of fluid	Conditions
Fluid group 1, chapter 1.3.a	DN25 only
Fluid group 2, chapter 1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, chapter 1.3.b	PN*DN ≤ 2000
Fluid group 2, chapter 1.3.b	DN ≤ 200

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Installation

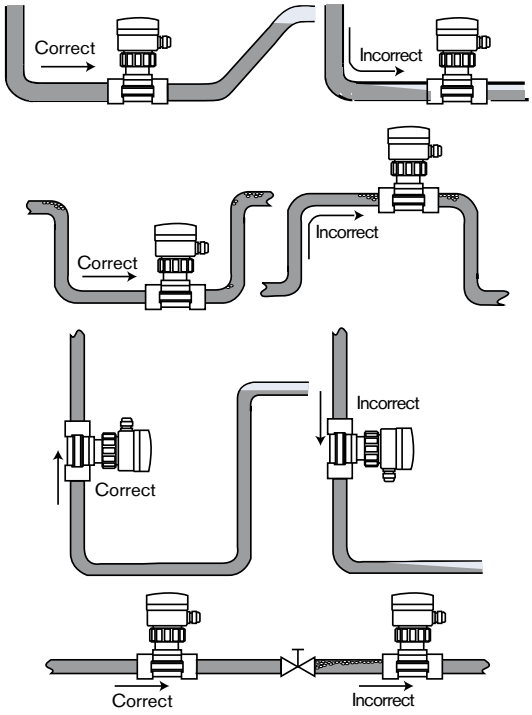
The Type 8025 can easily be installed into any Bürkert INSERTION fitting system (S020) by just fixing the main nut.
Minimum straight upstream and downstream distances must be observed. According to the pipe's design, necessary distances can be bigger or use a flow conditioner to obtain the best accuracy. For more information, please refer to EN ISO 5167-1.

EN ISO 5167-1 prescribes the straight inlet and outlet distances that must be complied with when installing fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated prescribed minimum inlet and outlet distances. These ensure calm, problem-free measurement conditions at the measurement point.



Installation (continued)

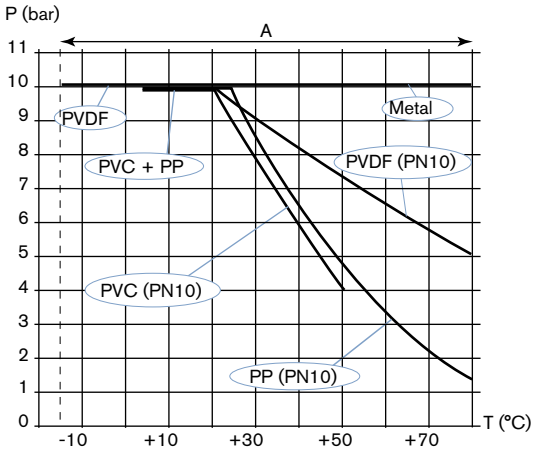
The device can be installed into either horizontal or vertical pipes. Mount the Type 8025 in these correct ways to obtain an accurate flow measurement.



Pressure and temperature ratings must be in accordance to the selected fitting material. The suitable pipe size is selected using the diagram Flow/Velocity/DN.

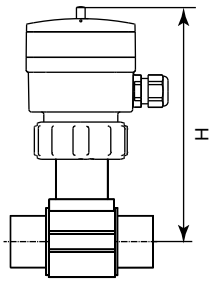
The flowmeter is not designed for gas or steam flow measurement.

Pressure/Temperature diagram



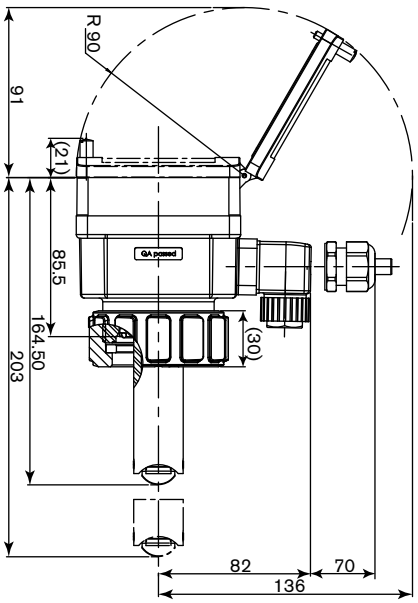
A: Application range for complete device (fitting + measuring device)

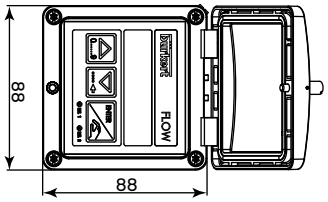
Dimensions [mm]



Total height with fitting

DN	H			
	T-Fitting	Saddle	Plastic spigot	Metal spigot
20	185			
25	185			
32	188			
40	192			
50	198	223		193
65	198	221	206	199
80		226	212	204
100		231	219	214
110		227		
125		234	254	225
150		244	261	236
180		268		
200		280	282	257
250			300	317
300			312	336
350			325	348
400			340	





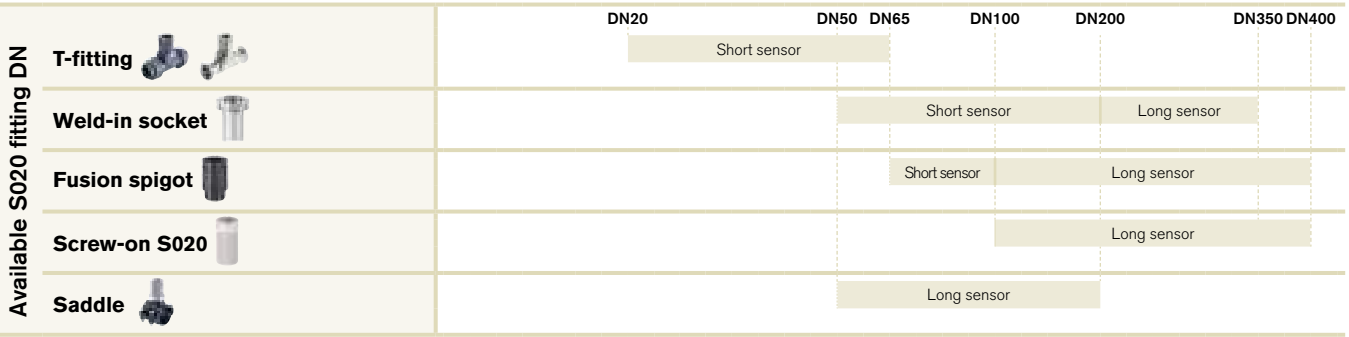
Note:
The length of the sensor finger depends on the fitting used.

see Type S020.

Ordering chart

Description	Voltage supply	Output	Relay	Sensor version	Electrical connection	Item no.
Compact Flowmeter Type 8025T						
Standard output signal flowmeter, 2 totalizers	12 - 30 V DC	4 - 20 mA (2-wire) + pulse	none	Hall, short	DIN EN 175301-803	418 762
					2 cable glands	418 802
				Hall, long	DIN EN 175301-803	418 763
					2 cable glands	418 803
		4 - 20 mA (3-wire) + pulse	2	Hall, short	2 cable glands	418 778
				Hall, long	2 cable glands	418 779
	115 - 230 V AC	4 - 20 mA (2-wire) + pulse	none	Hall, short	2 cable glands	418 423
				Hall, long	2 cable glands	418 424
		4 - 20 mA (3-wire) + pulse	2	Hall, short	2 cable glands	418 431
				Hall, long	2 cable glands	418 432
Indicator, 2 totalizers	2 x 9 V DC battery	none	none	Coil, short	none	418 403
				Coil, long	none	418 405

Note regarding the ordering of a complete sensor for the Type 8025T remote Transmitter:
Please enter the appropriate sensor according to the Technical Data table regarding compatibility and select and order the respective INSERTION fitting and the selected sensor separately.



Accessories

Description	Item no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449 755
Set with 2 reductions M20 x 1.5 /NPT1/2" + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551 782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551 775
Ring	619 205
Union nut	619 204
Set with 1 green FKM and 1 black EPDM seal	552 111
Cable plug DIN EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug DIN EN 175301-803 with NPT1/2" reduction without cable gland (Type 2509)	162 673

Transmitter UNIVERSAL, remote version

- Displays both flow rate and volume (with two totalizers)
- On site calibration by Teach-In
- Simulation of all output signals

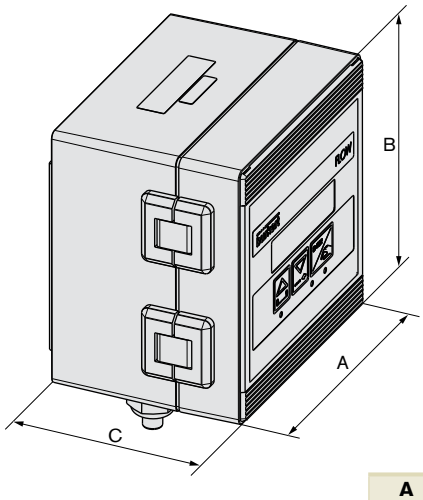
The 8025 universal flow transmitter with display, is available in wall-mounted and panel versions:

- **The panel version**
  is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronic board
- **The wall-mounted version**
  is made up of an electronics integrated in a housing with cover, display. The electrical connection is carried out on the terminal blocks of the electronic board via 3 cable glands.

Technical data

General data	
Display	15 x 60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Recommended cable	Max. 50 m, shielded, 1.5 mm² max. cross-section
Compatibility	Bürkert flow sensor with frequency output (8020, 8030, 8030HT, 8041, 8031, 8070, 8071) or other sensors with compatible electrical data.
Materials	
Housing, cover	PC (panel-mounted version); ABS (wall-mounted version)
Front panel foil	Polyester
Screws	Stainless steel
Cable glands/Cable clips	PA (wall-mounted version) / PA (panel-mounted version)
Electrical connections	Terminals (panel-mounted version) or terminals via gland (wall-mounted version)
Recommended cable	0.2 to 1.5 mm² cross-section, shielded cable, 4... 8 mm diameter (for the cable glands of the wall-mounted version)
Electrical data	
Power supply (V+)	
Panel- and wall-mounted version	12 - 36V DC (max tolerance: -5% or +10% at 12V VC; ±10% at 36 V DC), filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level,
Wall-mounted version	115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversal polarity of DC	Protected
Current consumption with sensor	(without consumption of current output of the flow-meter)
Version with relay	≤ 90 mA (at 12 V DC); ≤ 45 mA (at 36 V DC); ≤ 55 mA (115/230 V AC)
Version without relays	≤ 60 mA (at 12 V DC); ≤ 30 mA (at 36 V DC); ≤ 40 mA (115/230 V AC)

Dimensions [mm] (see datasheet for further details)



A	B	C
126	120	90

Transmitter input (from sensor)	0.6 Hz to 2.2 kHz, can be adjusted -
Frequency range	max. voltage: 36 V DC Open collector NPN (with 470 Ω or 2.2 kΩ resistance) or PNP, Coil, TTL, CMOS (with 39 kΩ resistance)
Transmitter output (to sensor)	- with a 12 - 36 V DC powered transmitter:
Voltage supply	▪ 10.5... 34.5 V DC [=(V+) - 1.5 V DC], 140 mA max. ▪ 0... 23.5 V DC [=(V+) - 12.5 V DC], 80 mA max. non regulated ▪ 5 V DC, 30 mA max. - with a 115/230 V AC powered transmitter: ▪ +27 V DC, 80 mA max. ▪ +14.5 V DC [=(V+) - 12.5 V DC] 80 mA max. non regulated ▪ 5 V DC, 30 mA max.

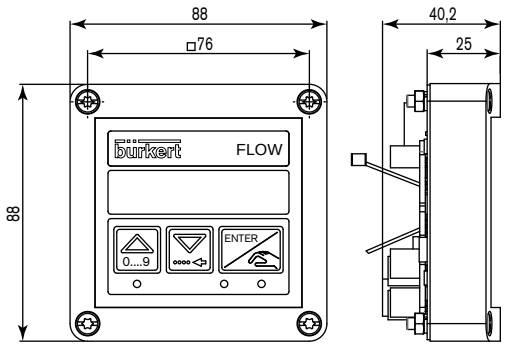
Technical data (continued)

Digital outputs	
Transistor (DO1)	NPN or PNP (wiring dependent), potential free Function: pulse output (by default), configurable 0.6 - 2200 Hz, 5 - 36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA duty cycle: ▪ > 0.45 if 0.6 < frequency < 300 Hz ▪ > 0.4 if 300 < frequency < 1500 Hz ▪ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against polarity reversals and short-circuits
Relay (DO2 and DO3)	2 relays (normally open), freely adjustable (hysteresis by default), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load), life span of min. 100000 cycles
Analogue output Current (AO1)	4... 20 mA, sink or source (wiring dependent), 22 mA to indicate a fault (can be activated); max. loop impedance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 750 Ω at 24 V DC, 300 Ω at 15 V DC, 200 Ω at 12 V DC
4... 20 mA measurement error	±1%
Technical specifications 115/230 V AC available inside the device	Wall-mounted version: Voltage supply: 27 V DC regulated, Max. current: 250 mA Integrated protection: fuse 250 mA temporised Power: 6 VA

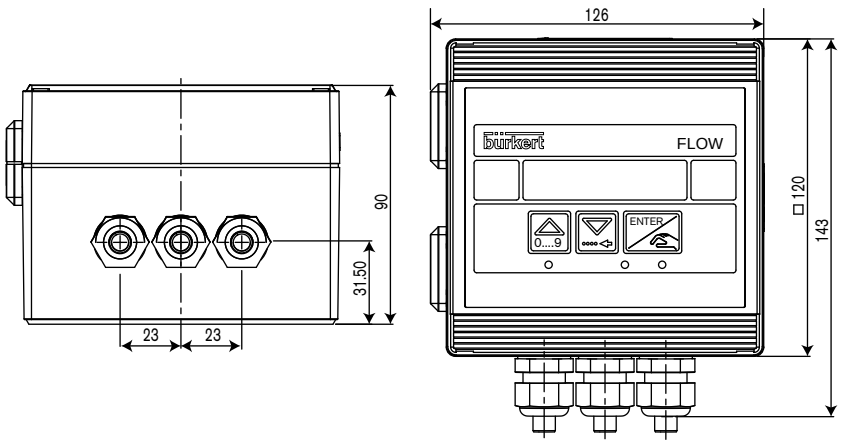
Environment	
Height above sea level	Max. 2000 m
Ambient temperature	-10 °C to +60 °C (14 to 140°F) (operation and storage)
Relative humidity	≤ 80%, without condensation
Standards, directives and approvals	
Standard	
EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 61010-1
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
Protection class	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
Specific technical data of UL-recognized products for US and Canada	
Relay output	30 V AC and 42 V peak max. or 60 V DC max.
Ambient temperature	0 °C to +40 °C (32 to 104°F)
Relative humidity	max. 80 %, without condensation
Intended for an inner pollution	Grade of pollution 2, according to EN61010-1
Installation category	Category I, according to UL61010-1

Dimensions [mm]

Panel-mounted version



Wall-mounted version



Ordering chart

Version	Description	Voltage supply	Output	Relay	Electrical Connection	Item no.
Remote Transmitter Type 8025T						
Panel mounting	Universal transmitter, 2 totalizers	12 - 30 V DC	4 - 20 mA (3-wire) + pulse	none	Terminal strip	419 538
				2	Terminal strip	419 537
Wall mounting	Universal Transmitter, 2 totalizers	12 - 30 V DC	4 - 20 mA (3-wire) + pulse	none	3 cable glands	419 541
				2	3 cable glands	419 540
		115 - 230 V AC	4 - 20 mA (3-wire) + pulse	none	3 cable glands	419 544
				2	3 cable glands	419 543

Note regarding the ordering of a complete sensor for the Type 8025T remote Transmitter:
Please enter the appropriate sensor according to the Technical Data table regarding compatibility and select and order the respective INSERTION fitting and the selected sensor separately.

Accessories

Description	Item no.
Spare part, panel version	
Mounting set (screws, washer, nuts, cable clips)	554 807
Seal	419 350
Set with 8 FLOW foils	553 191
Spare part, wall version	
Power supply board 115/230 V AC + mounting instruction sheet	555 722

Extremely cool.

We don‘t testify our direct-acting plunger valve 2610 special coolness just because it allows temperatures of minus 200°C. On the contrary: the normally closed plunger valve can also take the heat – up to 180°C without any problems. The highlight of this temperature extreme: We isolated the coil from the housing with a metal bellow system, thus preventing both condensation build-up and excess coil heating. To top it off, we‘ve even integrated an energy saving effect: the “kick & drop” electronics assists during the opening process and then directly reduces the current to the holding power. That‘s pretty cool, too!

We make ideas flow.

Transmitter, remote Version

- Only for Bürkert flowmeters in „Low Power“ version
- Displays both flow rate and volume (with two totalizers)
- On site calibration by Teach-In
- Simulation of all output signals

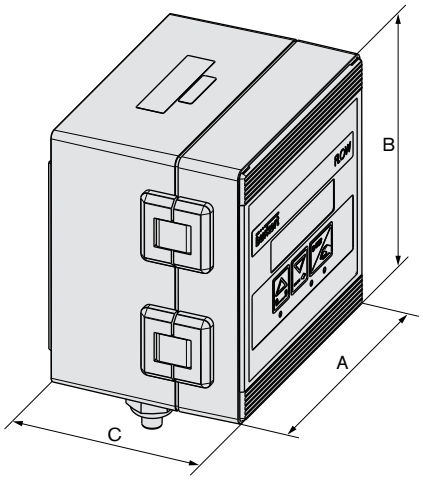
The 8025 flow transmitter with display, is available in wall-mounted and panel versions:

- **The panel version**
  is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronic board
- **The wall-mounted version**
  is made up of an electronics integrated in a housing with cover, display. The electrical connection is carried out on the terminal blocks of the electronic board via 3 cable glands.

Technical data

General data	
Display	15 x 60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	Bürkert flow sensor with frequency output 8020, 8030 or 8070 (pulse “Low Power” version).
Materials	
Housing, cover	PC (panel-mounted version); ABS (wall-mounted version)
Front panel foil	Polyester
Screws	Stainless steel
Cable glands/Cable clips	PA (wall-mounted version) / PA (panel-mounted version)
Electrical connections	Terminals (panel-mounted version) or terminals via cable gland (wall-mounted version)
Recommended cable	0.2 to 1.5 mm² cross-section, shielded cable, 4... 8 mm diameter (for the cable glands of the wall-mounted version)
Electrical data	
Power supply (V+)	
Panel-mounted version	12 - 36 V DC ±10%, filtered and regulated
Wall-mounted version	12 - 36 V DC ±10%, filtered and regulated or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversal polarity of DC	Protected
Current consumption with sensor	(without consumption of pulse output)
Version with relay	≤ 70 mA (at 12 V DC)
Version without relays	≤ 25 mA (at 12 V DC)
Transmitter input (from sensor)	2.5 to 400 Hz
Frequency range	Pulse “Low Power” (open collector NPN)
Transmitter output (to sensor)	10... 34 V DC (=(V+) - 2 V DC),
Voltage supply	max. current available from transmitter: 1 mA
Current consumption	

Dimensions [mm] (see datasheet for further details Details)



Version	A	B	C
Mounting panel	88	88	25
Wall-mounting	126	120	90

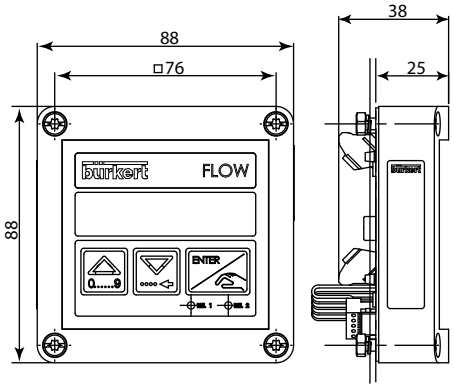
Digital outputs	
Pulse	polarized, potential free, 5... 36 V DC; 100 mA, protected, line drop at 100 mA: 2.5 V DC
Relay	2 relays, freely adjustable 3 A, 230 V AC
Analogue output	
Current	4... 20 mA (3-wire with relays; 2-wire without relay); max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
4...20 mA measurement error	±1%
Technical specifications 115/230V AC	Wall-mounted version:
available on the device	Supply voltage: 27V DC controlled, Max. current: 250 mA Integrated protection: security fuse 250 mA Power: 6 VA

Technical data (continued)

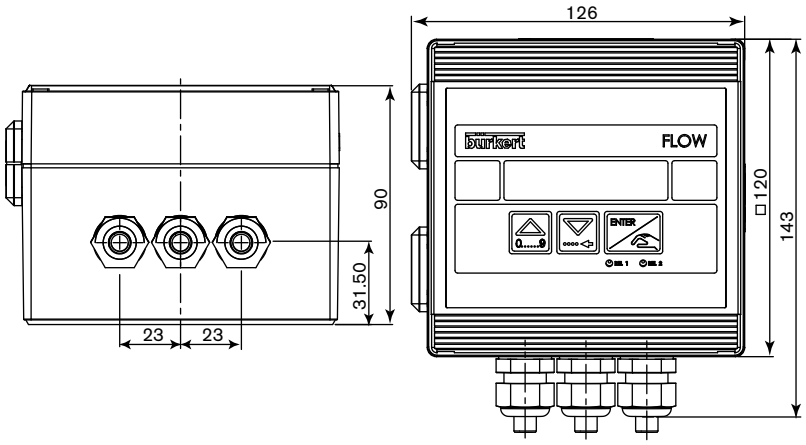
Environment	
Height above sea level	Max. 2000 m
Relative humidity	≤ 80%, without condensation
Ambient temperature	-10 °C to +60 °C (32 to 140°F) (operation and storage)
Standards, directives and approvals	
Protection class	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
Approvals	CE
Standard	
EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 61010-1
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
Specific technical data of UL-recognized products for US and Canada	
Relay output	30 V AC and 42 V peak max. or 60 V DC max.
Ambient temperature	-10 °C to +60 °C (14 to 140°F)
Relative humidity	max. 80 %, without condensation
Intended for an inner pollution	Grade of pollution 2, according to EN61010-1
Installation category	Category I, according to UL61010-1

Dimensions [mm]

Panel-mounted version



Wall-mounted version



Ordering chart

Description	Voltage supply	Output	Relays	Sensor version	Electrical connection	Item no.
Transmitter, panel mounted, 2 totalizers	12 - 36 V DC	4... 20 mA (2 wires) + pulse	None	8020/8030[1]/8070[2]	Terminal strip	418 992
		4... 20 mA (3 wires) + pulse	2	8020/8030[1]/8070[2]	Terminal strip	418 994
Transmitter, wall-mounted, 2 totalizers	12 - 36 V DC	4... 20 mA (2 wires) + pulse	None	8020/8030[1]/8070[2]	3 cable glands	418 397
	115/230 V AC	4... 20 mA (3-wires) + pulse	None	8020/8030[1]/8070[2]	3 cable glands	418 400

[1] 8030 = SE30 + S030
[2] 8070 = SE30 + S070

Note regarding the ordering of a complete sensor for remote Type 8025T Transmitter:
Please enter the appropriate sensor according to "Technical Data - compatibility" table and select the respective INSERTION fitting and order the selected sensor separately.

Accessories for remote transmitter Type 8025 (has to be ordered separately)

Description	Item no.
Spare part, panel version	
Mounting set (screws, washer, nuts, cable clips)	554 807
Seal	419 350
Set with 8 FLOW foils	553 191
Spare part, wall version	
Power supply board 115/230 V AC + mounting instruction sheet	555 722

Out-of this-world versatility.

OK, so it still can't fly to the moon. But for anything that needs measuring, controlling and metering, the Bürkert multiCELL multi-channel transmitter/controller Type 8619 is the ideal choice. Up to 6 modular signal inputs and outputs as well as options for mathematical functions or data logging adapt this universal genius individually to every application. This gives you more flexibility, expands the range of possible applications – including those that you might not even have thought of yet – and gives you precisely the support you need. Now also available for measuring chlorine and wall or pipe mounting with an operating voltage of 12..36 VDC and 110/230 VAC. The sky really is the limit!

We make ideas flow.

Insertion Flow Transmitter for continuous measurement

For use with fitting DN15-400, PN10

- Up and download of the data through removable display
- Preferably, for pipe diameter greater than DN65 mm

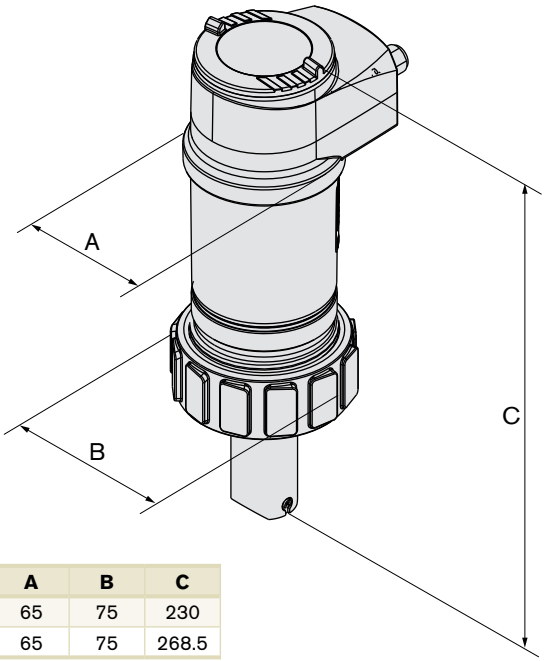
Please see fitting S020

The insertion style flow meter provides a 4-20 mA output directly proportional to flow. A range of fittings from weld-o-lets to saddles makes these ELEMENT style transmitters perfect for neutral, solid free liquids. A backlit removable display with joystick programming makes commissioning a breeze.

Technical Data

General data	
Compatibility	Any pipe from DN15 to 400, which is mounted with Bürkert INSERTION fitting (see separate datasheet S020).
Materials	See the following materials below
Housing	Stainless steel 1.4404, PPS
Cover	PC
Gaskets	EPDM
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Nickel-plated brass
Display	PC
Navigation key	PBT
Nut	PC
Wetted part materials	
Sensor finger	PVDF
Gasket	FKM (Standard)
Axis and bearings	Ceramic (Al2O3)
Paddle-wheel	PVDF
Display (accessories)	Grey dot matrix 128 x 64 with backlighting
Electrical connections	
2 or 3 outputs transmitter	1 x 5-pin M12 male fixed connector
4 outputs transmitter	1 x 5-pin M12 male and 1 x 5-pin M12 female fixed connectors
Connection cable	Shielded cable
Complete device data (Pipe + transmitter)	
Pipe diameter	DN15 to 400
Measuring range	0.3 up to 10 m/s
Medium temperature with fitting in	
PVC / PP	0 °C to 50 °C (32 to 122 °F) / 0 °C to 80 °C (32 to 176°F)
PVDF, brass or stainless steel	-15 °C to 100 °C (5 to 212 °F)
Medium pressure max.	PN10 (145 PSI) - see pressure / temperature chart
Viscosity / Particles rate	300 cSt max. / 1% max.
Measurement error	
Teach-In	±1% of Reading (at Teach-In flow rate value)[1)]
Standard K-factor	±2.5% of Reading[1)]
Linearity	±0.5% of F.S.*[1)]
Repeatability	±0.4% of Reading[1)]

Envelope Dimensions [mm] (see datasheet for details)



	A	B	C
Short	65	75	230
Long	65	75	268.5

Options

- PVC, PVDF and PP, St.st. and brass fitting
- Various sealing materials
- Individual calibration certificate
- Pre-wired connection ports, M12 plug and cable

[1)] Under reference conditions i.e. measuring fluid=water, ambient and water temperature = 20 °C (68°F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.
* F.S.=Full scale (10 m/s)

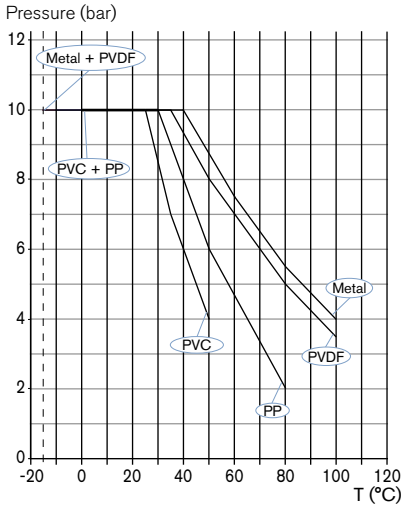
Technical Data (continued)

Power supply	
2 or 3 outputs transmitter (2-wire)	14-36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12-36 V DC, filtered and regulated
Electrical data	
Characteristics of the power source (not provided) **of UL recognized devices**	Limited power source (according to § 9.3 of the UL61010-1 standard) or Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Current consumption with sensor	≤ 1 A (with transistors load)
2 or 3 outputs transmitter (2-wire)	≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
Power consumption	max. 40 W
Reversed polarity of DC	Protected
Voltage peak	Protected
Short circuit	Protected for transistor outputs
Output	
Transistor	
1 Transistor output (Transmitter 2-wire)	NPN, open collector, 1–36 V DC, max. 700 mA
2 Transistor outputs (Transmitter 2 or 3-wire)	Configurable as sourcing or sinking (respectively both as PNP or NPN), open collector, max. 700 mA, 0.5 A max. per transistor if the 2 transistor outputs are wired NPN-output: 1 - 36 V DC PNP-output: Power supply
Current	4-20 mA programmable as sourcing or sinking (in the same mode as transistor),
1 Current output (Transmitter 2-wire)	max. loop impedance: 1100 W at 36 V DC ; 610 W at 24 V DC; 180 W at 14 V DC
2 Current outputs (Transmitter 3-wire)	max. loop impedance: 1100 W at 36 V DC; 610 W at 24 V DC; 100 W at 12 V DC
4...20 mA measurement error	±1%
Environment	
Ambient temperature	-10 °C to +60 °C (operating and storage)
Relative humidity	≤ 85%, without condensation
Standards, directives and approvals	
Protection class	IP65, IP67, NEMA250 4X with M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	
EMC	EN 61000-6-2 (2005), EN 61000-6-3 (2001)
Pressure	Complying with article 3 of §3 from 97/23/CE. directive*
Vibration / Shock	EN 60068-2-6 / EN 60068-2-27
Approvals	UL61010-1 + CAN/CSA-C22 No.61010-1
UL-Recognized for US and Canada c UL us	

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	DN ≤ 25 only
Fluid group 2, §1.3.a	DN ≤ 32 DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.a	DN ≤ 25 DN > 25 and PN*DN ≤ 2000
Fluid group 2, §1.3.a	DN ≤ 400

Pressure / temperature chart



Application range for complete device (Fitting + Transmitter)

Ordering Chart

Output	Electrical connection	Item no.	
		Short	Long
with display			
1 x transistor NPN + 1 x 4 - 20 mA (2-wire)	5-pin M12 male	561 860	561 870
2 x transistor NPN / PNP + 1 x 4 -20 mA (2-wire)	5-pin M12 male	561 861	561 871
2 x transistor NPN / PNP + 2 x 4 - 20 mA (3-wire)	5-pin M12 male and 5-pin M12 female	561 862	561 872
without display			
1 x transistor NPN + 1 x 4 -20 mA (2-wire)	5-pin M12 male	560 860	560 870
2 x transistor NPN / PNP + 1 x 4 - 20 mA (2-wire)	5-pin M12 male	560 861	560 871
2 x transistor NPN / PNP + 2 x 4 - 20 mA (3-wire)	5-pin M12 male and 5-pin M12 female	560 862	560 872

Accessories

Description	Item No
Removable display/programmer module (with instruction sheet)	559 168
Electrical connector, 5-pin M12 male, plug only	560 946
Electrical connector, 5-pin M12 male, 2 m pre-wired	559 177
Electrical connector, 5-pin M12 female, plug only	917 116
Electrical connector, 5-pin M12 female, 2 m pre-wired	438 680

Note: Type 8026, a complete flow transmitter with integrated paddle, consists of Type 8026 which is a compact ELEMENT Flow Transmitter, a removable display/programming module and Type S020, an INSERTION fitting (the latter must be ordered separately)

Insider Tip!

Did you know…? The Bürkert Type 330 is more than just a solenoid valve: it's many in one. Featuring a body made of plastic, brass, aluminium or stainless steel and with various ports and sealants, it adapts to perfectly fit every requirement. Which means its unique and versatile valve technology is suitable for use in nearly all industries. Full encapsulation, the IP65 rating and an explosion-proof enclosure make the 330 fit for rough environments and critical media. Its long service life ensures it won't be a thing of the past tomorrow.
So spread the word!

We make ideas flow.

Digital batch controller INLINE

DN06-65 mm

- Dosing
- On site calibration by Teach-In
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed

The 8035 batch controller is specially designed for use in neutral, slightly aggressive, solid-free liquids. The batch controller is made up of a compact fitting with paddle-wheel (S030) and an electronic module (SE35) quickly and easily connected together by a Quarter-Turn.

The Bürkert designed fitting system ensures simple installation of the sensors into all pipes from DN06-65.

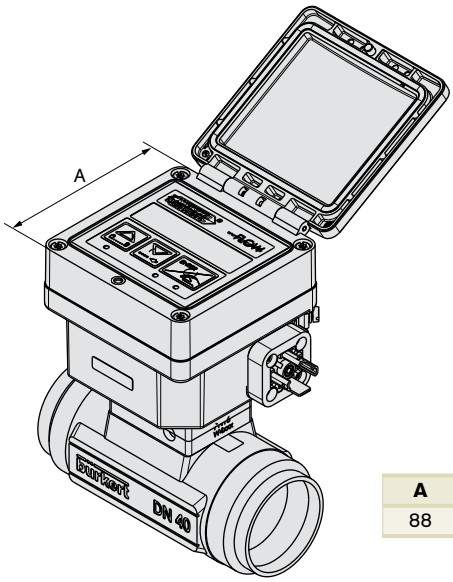
Technical Data

General data	
Compatibility	with fittings S030 (see datasheet)
Materials	
Housing, cover, lid, nut	PC
Front panel foil / Screws	Polyester / Stainless steel
Cable glands	PA
Wetted parts materials	
Fitting, sensor armature	Brass, st, st, 1.4404/316L, PVC, PP or PVDF
Paddle-wheel	PVDF
Axis and bearing / Seal	Ceramics / FKM (EPDM incl., but not mounted)
Display	15 x 60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable glands M20 x 1.5
Recommended cable	Max. 50 m, shielded, 1.5 mm² max. cross-section
Device data (Fitting S030 + Electronics)	
Pipe diameter	DN06-65 mm
Measuring range	0.3 to 10 m/s (Hall transducer version)
Fluid temp. with fitting in	
PVC / PP	0 °C to +50 °C / 0 °C to +80 °C
PVDF, brass or st. st.	-15 °C to +100 °C
Fluid pressure max.	PN10 (with plastic fitting) - PN16 (with metal fitting) - (PN40 on request, see S030 data sheet) - see Pressure/ Temperature diagram
Viscosity / Pollution	300 cSt. max. / 1% max (size: max. 0.5 mm)
Accuracy	
Teach-In	±0.5% of F.S.*[1)]
Standard K-factor	±(0.5% of F.S.* + 2.5% of Reading)[1)]
Linearity	±0.5% of F.S.*[1)]
Repeatability	≤ 0.4% of Reading[1)]

[1)] Under ref. conditions i.e. measuring fluid=water, ambient and water temperature=20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

* F.S.=Full scale (10 m/s)

Envelope Dimensions [mm] (see datasheet for details)



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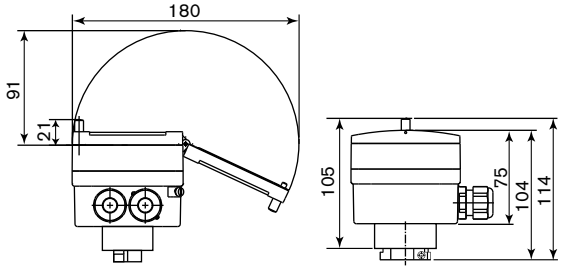
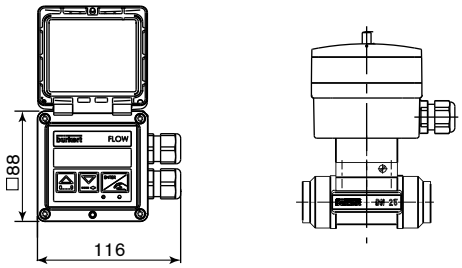
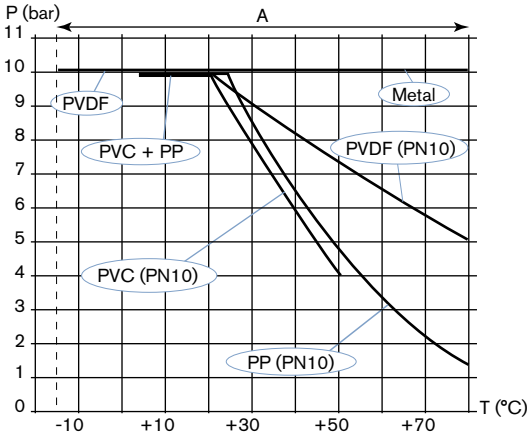




Technical Data (continued)

Electrical data	
Power supply (V+)	12 - 36 V DC (max tolerance: -5% or +10% at 12 V DC; ±10% at 36 V DC), filtered and regulated, SELV (safety extra low voltage), circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of digital input and pulse output)	with relays ≤ 90 mA at 12 V DC; ≤ 45 mA at 36 V DC
Inputs DI (1 to 4)	Switching threshold Von: 5... 36 V DC; Switching threshold Voff max: 2 V DC; Input impedance: 9.4 KOhms; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs	
Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6 - 2200 Hz, 5 - 36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100% of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)
Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated max. current: 125 mA integrated protection: fuse 125 mA temporised power: 3 VA
Environment	
Ambient temperature (operation and storage)	-10 to +60°C (14 to 140°F) (version 12 - 36 V DC) -10 to +50°C (14 to 122°F) (version 115/230 V AC)
Height above sea level	max. 2000 m
Relative humidity	≤ 80 %, without condensation
Standards, directives and approvals	
Protection class (according to EN60529)	IP65 with cable gland mounted and tightened or with obturator locked if not used.
Standard and directives	
EMC	EN 61000-6-2, EN 61000-6-3
Security	EN 61010-1
Pressure (Fitting S030, DN06 to DN65, in PVC, PP, PVDF, stainless steel or brass)	Complying with article 3 of chap. 3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
Approvals	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22 No.61010-1)

Pressure / temperature chart



A: Application range for complete device (Fitting + Transmitter)

Operation and display

When mounted in a pipe in series with one or two valves, the 8035 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.
The electronic component needs a voltage supply of 12 - 36 V DC or 115/230 V AC.
The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100% of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.
The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- **Locally started dosing of free quantity:**
  the user enters the quantity to be filled and starts the dosing from the keypad.
- **Locally started dosing of preset quantity:**
  the user selects a quantity which has been preset and starts the dosing from the keypad.
- **Locally started dosing of free/preset quantity**
  the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.
- **Dosing controlled by a PLC unit**
  the user selects a quantity which has been preset and starts the dosing using binary inputs.
- **Locally/remote selection of preset quantity and dosing controlled by a PLC unit:**
  the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.
- **Automatic dosing controlled by variation of pulse duration:**
  the quantity of the dosing is directly proportional to the duration of a pulse.
- **Remote dosing determined by Teach-In:**
  Teach-In of the dosing quantity using binary inputs.
- **Local dosing determined by Teach-In:**
  Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.
User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/ display	Parameter definition	Test	Information	History
▪ dosing amount ▪ dosing mode ▪ main quantity totalizer ▪ daily quantity totalizer with reset function ▪ main batch totalizer ▪ daily batch totalizer with reset function	▪ language ▪ engineering units ▪ K-factor/Teach-In function ▪ selection of dosing mode ▪ over run correction ▪ alarm ▪ outputs configuration ▪ reset both quantity/batch totalizers (main and daily) ▪ Brightness of the display (backlight)	▪ input test ▪ output test ▪ frequency test ▪ warning and fault messages generating ▪ configuration mode	▪ Display of error, alarm and/or warning messages	▪ Display of the 10 latest batches

Ordering Chart

Description	Voltage supply	Relay	Sensor version	Electrical connection	Item no.
Electronic module Type SE35 for batch controller					
Batch controller, compact version	12 - 30 V DC	2	Hall	2 Cable glands	443 360
	115 - 230 V AC	2	Hall	2 Cable glands	423 926

Accessories

Description	Item no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449 755
Set with 2 reductions M20 x 1.5 /NPT1/2" + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551 782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551 775

Note: Type 8035 batch controller consists of Type SE35, an INLINE electronics and Type S030, an INLINE fitting (DN06 - DN65) and must be ordered separately

Digital flow ELEMENT transmitter for continuous flow measurement

- DN06-65 mm fluidic process connection
- Programmable outputs: one or two transistor output(s) and single or dual 4-20 mA current output(s)
- Removable backlit display of flow and/or two totalized volumes
- Automatic-calibration: TEACH-IN, simulation of outputs signals provided without the need for real flow

The Bürkert transmitter, Type 8036, is a compact device, specially designed for measuring the flow rate in solid-free liquids, in a variety of applications (water, waste water monitoring, chemical processing...).

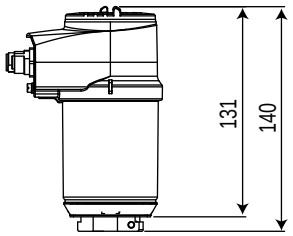
The transmitter is made up of a compact INLINE fitting equipped of a sensor with paddle-wheel and an enclosure with cover, containing the electronic module. A removable display completes this transmitter. This ensemble (SE36) is quickly and easily connected to the fitting (S030) by a Quarter-Turn.

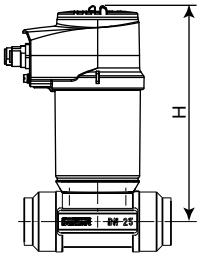
The flow transmitter can operate without the display, but it will be required for programming the transmitter (i.e. set parameters, restore default parameters, programme information to be displayed, programme access codes, adjust 4-20 mA output(s) ...) and also for visualizing continuously the measured and processed data. (see datasheet for more information)

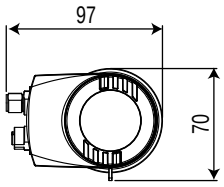
Technical Data

General data	
Compatibility	Any pipe from DN06-65 mm which is fitted out with Bürkert INLINE Fitting S030 (see corresponding data sheet)
Materials	See exploded view, on next page
Housing	Stainless steel 1.4561, PPS
Cover	PC
Gaskets	EPDM
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated
Display	PC
Navigation key	PBT
Quarter-Turn system	PC
Display (accessories)	Grey dot matrix 128 x 64 with backlighting
Electrical connections	
2 or 3 outputs transmitter	1 x 5-pin M12 male fixed connector,
4 outputs transmitters	1 x 5-pin M12 male and 1 x 5-pin M12 female fixed connectors
Connection cable	Shielded cable
Environment	
Ambient temperature	-10 °C up to +60 °C (operating and storage)
Relative humidity	≤ 85%, without condensation
Complete device data (Pipe + transmitter)	
Pipe diameter	DN06 to 65
Measuring range	0.3 up to 10 m/s

Envelope Dimensions [mm] (see datasheet for details)







DN	H with S030 Fitting
06	160
08	160
15	165
20	163
25	163
32	166
40	170
50	177
65	177

Medium temperature with fitting in	0 °C to 50 °C (32 to 122 °F)
PVC	0 °C to 80 °C (32 to 176 °F)
PP	-15 °C to 100 °C (5 to 212 °F)
PVDF, brass or stainless steel	
Medium pressure max.	PN10 (145 PSI) (with plastic fitting) - PN16 (232 PSI) (with metal fitting) - (PN40 on request, see S030 data sheet) - see pressure / temperature chart
Viscosity / Particles rate	300 cSt max. / 1% max.
Measurement error	
Teach-In	±1% of Reading (at Teach-In flow rate value)1)
Standard K-factor	±2.5% of Reading[1)]
Linearity	±0.5% of F.S.*[1)]
Repeatability	±0.4% of Reading[1)]

[1)] Under reference conditions i.e. measuring fluid=water, ambient and water temperature=20°C (68°F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

* F.S.=Full scale (10 m/s)

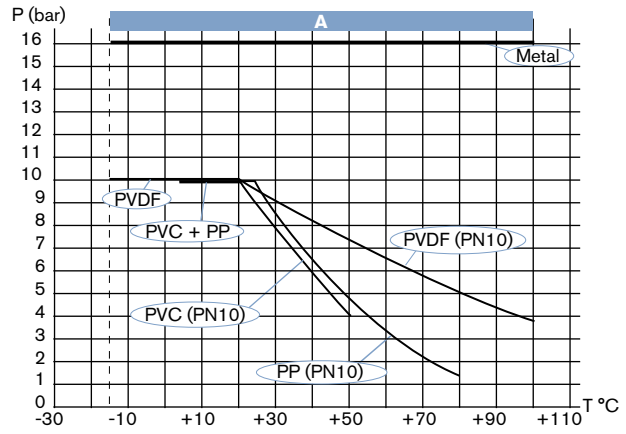
Technical Data (continued)

Electrical data	
Power supply	
2 or 3 outputs transmitter (2-wire)	14-36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12-36 V DC, filtered and regulated
Characteristics of the power source (not provided) of UL recognized devices	Limited power source (according to § 9.3 of the UL61010-1 standard) or Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Current consumption	
with sensor	≤ 1 A (with transistors load)
2 or 3 outputs transmitter (2-wire)	≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
Power consumption	40 W max.
Reversed polarity of DC	Protected
Voltage peak	Protected
Short circuit	Protected for transistor outputs
Output	
Transistor	
1 Transistor output (Transmitter 2-wire)	NPN, open collector, 1 - 36 V DC, max. 700 mA
2 Transistor outputs (Transmitter 2 or 3-wire)	Configurable as sourcing or sinking (respectively both as PNP or NPN), open collector, max. 700 mA, 500 mA max. per transistor if the 2 transistor outputs are wired NPN-output: 1 - 36 V DC PNP-output: Power supply
Current	4-20 mA programmable as sourcing or sinking (in the same mode as transistors),
1 Current output (Transmitter 2-wire)	max. loop impedance: 1100 W at 36 V DC ; 610 W at 24 V DC; 180 W at 14 V DC
2 Current outputs (Transmitter 3-wire)	max. loop impedance: 1100 W at 36 V DC; 610 W at 24 V DC; 100 W at 12 V DC
4... 20 mA measurement error	±1%

Standards, directives and approvals	
Protection class	IP65, IP67, NEMA 4X and NEMA 6P with M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	
EMC	EN 61000-6-2 (2005), EN 61000-6-3 (2001)
Pressure	Complying with article 3 of §3 from 97/23/CE. directive*
Vibration / Shock	EN 60068-2-6 / EN 60068-2-27
Approvals	
UL-Recognized for US and Canada c UL us	UL61010-1 + CAN/CSA-C22 No.61010-1

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

Pressure/temperature chart



A : application range for complete device (Fitting + transmitter)

Ordering Chart

Description	Voltage supply	Output	Electrical connection	Item no.	
				without display	with display
For compact transmitter, Type SE36					
2 outputs	14 - 36 V DC	1 x Transistor NPN + 1 x 4-20 mA (2-wire)	5-pin M12 male fixed connector male fixed connector	560 880	561 880
3 outputs	14 - 36 V DC	2 x Transistor NPN/PNP + 1 x 4-20 mA (2-wire)	5-pin M12 male fixed connector male fixed connector	560 881	561 881
4 outputs	12 - 36 V DC	2 x Transistor NPN/PNP + 2 x 4-20 mA (3-wire)	1 x 5-pin M12 male + 1 x 5-pin M12 female fixed connector	560 882	561 882

Accessories

Specification	Item no.
Removable display/programmer module (with instruction sheet)	559 168
Black blank cover with EPDM seal	560 948
Transparent cover with EPDM seal	561 843
 5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917 116
 5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560 946
 5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438 680
 5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559 177

Note about ordering table

To select an entire device the following order items are required:

- Product no. of the desired compact flow transmitter, Type SE36
- Product no. of the selected INLINE fitting, Type S030, must be ordered separately

Important

Please be careful when ordering devices without a display, that you purchase at least one display module.

Process control made simple.

Trust, but verify. Water treatment demands powerful and precise products which work reliably and intuitively. With their modular design, the multichannel transmitter solutions from Bürkert are able to handle different sensor sizes in parallel – perfectly attuned to the respective application. Their spectrum ranges from simple measurement value recording up to sophisticated control tasks – for high quality process control and your peace of mind.

MultiCELL 8619:
The versatile controller for individual transparency.

We make ideas flow.
www.burkert.com

Blind INSERTION Magmeter

For use with fitting DN15-350 mm

- Solid state technology
- Clean in place
- FDA approved

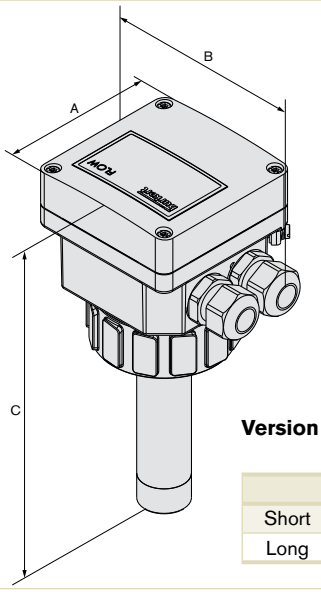
Please see fitting S020

The insertion magmeter constructed from a PVDF finger and high quality blind electronic module. Perfect for contaminated or aggressive fluids it has both 4 to 20 mA and pulse output, with optional 3A relays, making this a flexible solution for flow control or batching.

Technical Data

General data	
Compatibility	with fittings S020 (see corresp. datasheet)
Materials	
Housing, cover, nut	
PVDF sensor version	PC (glass fibre reinforced for housing) PPA (glass fibre reinforced)
Stainless steel sensor version	Stainless steel / NBR / PA with neoprene seal
Screws/Seal/Cable glands	
Wetted parts materials	PVDF or Stainless steel 1.4404/316L
Sensor holder	Stainless steel 1.4404/316L
Electrodes	G 2" connection: FKM (FDA approved), [EPDM (KTW approved)]
Seals	Clamp connection: EPDM or FEP (to be ordered separately)
	Stainless steel 1.4404/316L
Earth ring (PVDF sensor version)	PEEK (FDA approved)
Electrode holder (St. Steel sensor version)	
Surface finishing quality	Ra < 0.8 mm (Clamp connection)
Electrical connections	2 cable glands M20 x 1.5
Recommended cable	0.5 to 1.5 mm² cross-section, shielded cable, 6... 12 mm diameter (if only one cable is used per cable gland) or 4 mm diameter (if two cables are used per cable gland with using the supplied multi-way seal)
Environment	
Ambient temperature	-10 °C to +60 °C (14 to 140 °F) (operating) -20 °C to +60 °C (-4 to 140 °F) (storage)
Relative humidity	< 80%, without condensation
Height above sea level	max. 2000 m
Complete device data (Fitting S020 + flowmeter)	
Pipe diameter	
G 2" connection	DN06 to DN400
Clamp connection	DN32 to DN100
Measuring range	0.2 to 10 m/s
Sensor element	Electrodes
Fluid temperature	see Pressure/Temperature diagram
PVDF sensor version	0 °C to 80 °C (32 to 176°F) (depends on fitting)
Stainless steel sensor version	-15 °C to 150°C (5 to 302°F) (depends on fitting)

Envelope Dimensions [mm] (see datasheet for details)



Version G 2" connection

	A	B	C
Short	88	116	162
Long	88	116	199

Options

- Stainless steel finger for +150 °C and 16 bar with PPA housing
- FDA approved wetted materials, - Hastelloy C Electrodes

Fluid pressure max.	see pressure/temperature diagram
PVDF sensor version	PN10 (145.1 PSI)
Stainless steel sensor version	PN10 (145.1 PSI) (with plastic fitting) - PN16 (232.16 PSI) (with metal fitting)
Conductivity	min. 20 mS/cm
Accuracy	
Teach-In	±0.5% of Reading[1] (at the teach flow rate value)
Standard K-factor	±3.5% of Reading[1]
Linearity	±0.5% of F.S.[1]
Repeatability	±0.25% of Reading[1]

[1] Under reference conditions i.e. measuring fluid=water, ambient and water temperature = 20 °C (68°F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

* F.S.= Full scale (10 m/s)

Technical Data (continued)

Electrical data	
Power supply	18 - 36V DC filtered and regulated (3 wires)
Reversed polarity of DC	protected
Current consumption	≤ 220 mA (at 18V DC)
Output	
Signal current	4... 20 mA (sink or source by wiring), 100 ms refresh time; max. loop impedance: 1100 Ω at 36V DC; 330 Ω at 18V DC
Frequency	0... 240 Hz, duty cycle = 50%±1%; 100 mA max., protected against short-circuits and polarity reversals.
Relay	Normally open or normally closed (depending on wiring), 3 A, 250V AC
4... 20 mA output accuracy	±1%
Alarm	
Full scale exceeding	22 mA and 256 Hz
Fault signalling	22 mA and 0 Hz
User parameter	Saved in EEPROM

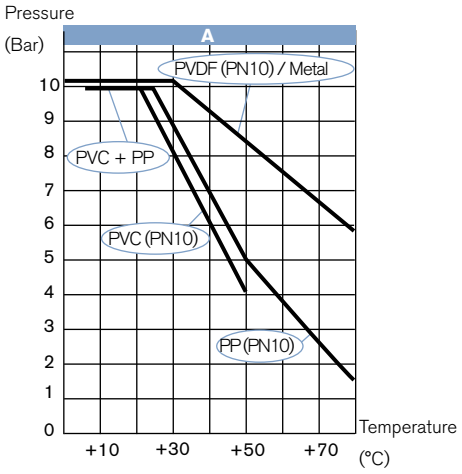
Standards, directives and approvals	
Protection class	IP65
Standards and directives	
EMC	EN 50081-1, EN 61000-6-2
Low voltage (LVD)	EN 61010-1
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
Approval	FDA

* For the 97/23/CE pressure directive, the device can only be used under following conditions (dependent on max. pressure, pipe diameter and fluid).

Type of fluid	Conditions
Fluid group 1, §1.3.a	Forbidden
Fluid group 2, §1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 200 or PN ≤ 10 or PN*DN ≤ 5000

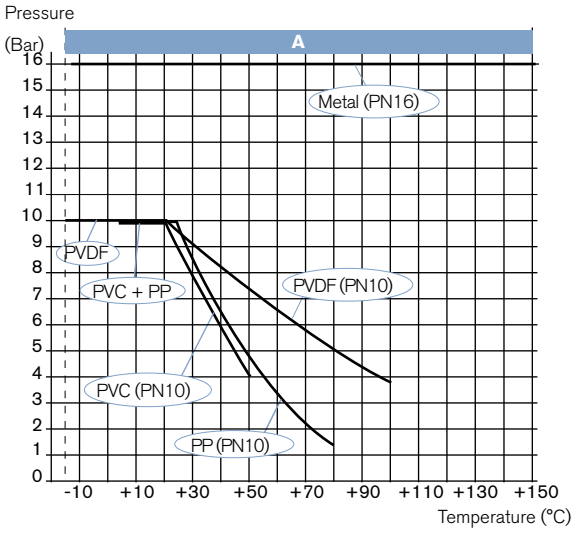
Pressure/Temperature diagram

8041 with a PVDF sensor
(depending on the fitting material)



A : application range for complete device (Fitting + transmitter)

8041 with a stainless steel sensor
(depending on the fitting material)



Ordering Chart

Output	Relay	Housing material	Seal material	Sensor version	Electrical connection	Item no.
4 - 20 mA, frequency	1	PC	FKM	short, PVDF	2 cable glands	558 064
				long, PVDF	2 cable glands	558 065
		PPA	FKM	short, stainless steel	2 cable glands	552 779
				long, stainless steel	2 cable glands	552 780

Note

1 Kit 558 102, 1 relay connection kit 552 812 and 1 EPDM seal are supplied with each transmitter.

To select a complete device the following items need to be ordered:

- Product no. of the desired flow meter for Type 8041
- Product no. of the Type S020 fitting, for gauges with G 2" connector, must be ordered separately

INSERTION Magmeter with display

For use with fitting DN15-350 mm

- Simple to read display
- Easy push button menu
- Clean in place
- FDA approved

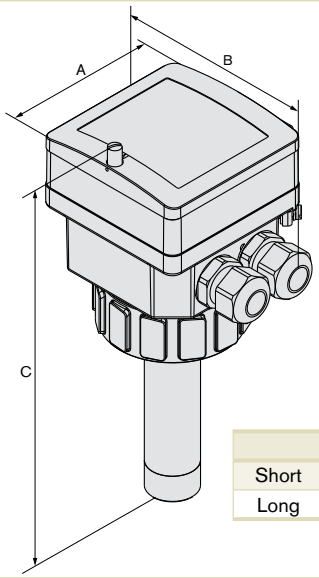
Please see fitting S020

With a stainless steel insertion finger and high quality electronic display module this unit is perfect for contaminated or aggressive fluids.
4-20 mA and pulse output with optional 3A relays makes this a flexible solution for flow control, batching or CIP control in FDA applications.

Technical Data

General data	
Compatibility	with Fittings S020 (see corresp. datasheet)
Materials	
Housing, cover, nut / seal	
PVDF sensor version	PC (glass fibre reinforced for housing) / NBR
Stainless steel sensor version	Black PPA (glass fibre reinforced) / NBR
Front panel foil	Polyester
Protection lid / seal	
PVDF sensor version	PC / silicone
Stainless steel sensor version	PSU / silicone
Screws / Seal	Stainless steel / NBR
Cable glands	PA with neoprene seal
Wetted parts material	
Sensor holder	PVDF or Stainless steel 1.4404/316L
Electrodes	Stainless steel 1.4404/316L or Alloy C22
Seals	G 2" connection: FKM (FDA approved) [EPDM (KTW approved)]
Earth ring (PVDF sensor version)	Clamp connection: EPDM or FEP (to be ordered separately)
Electrode holder (St. Steel sensor version)	Stainless steel 1.4404/316L or Alloy C22 PEEK (FDA approved)
Surface finishing quality	Ra < 0.8 mm (Clamp connection)
Electrical connections	2 cable glands M20 x 1.5
Recommended cable	0.5 to 1.5 mm2 cross-section, shielded cable, 6... 12 mm diameter (if only one cable is used per cable gland) or 4 mm diameter (if two cables are used per cable gland with using the supplied multi-way seal)
Environment	
Ambient temperature	-10 °C to +60 °C (14 to 140°F) (operating) -20 °C to +60 °C (-4 to 140°F) (storage)
Relative humidity	< 85%, without condensation
Height above sea level	max. 2000 m
Complete device data (Fitting S020 + flowmeter)	
Pipe diameter	
G 2"connection	DN06 to DN400
Clamp connection	DN32 to DN100
Measuring range	0.2 to 10 m/s
Sensor element	Electrodes

Envelope Dimensions [mm] (see datasheet for details)



	A	B	C
Short	88	116	181
Long	88	116	218

Options

- PVDF finger for +80 °C and 6 bar with PC housing
- Hastelloy electrodes

Medium temperature	see Pressure/Temperature diagram
PVDF sensor version	0 °C to 80 °C (32 to 176°F)
Stainless steel sensor version	(depends on fitting) -15 °C to 110 °C (5 to 230°F) (depends on fitting)
Medium pressure max.	see Pressure/Temperature diagram
PVDF sensor version	PN10 (145.1 PSI)
Stainless steel sensor version	PN10 (145.1 PSI) (with plastic fitting) PN16 (232.16 PSI) (with metal fitting)
Conductivity	min. 20 mS/cm
Accuracy	
Teach-In	±0.5% of Reading[1)]
Standard K-factor	(at the teach flow rate value) ±3.5% of Reading[1)]

Technical Data (continued)

Linearity	±0.5% of F.S.[1)]
Repeatability	±0.25% of Reading[1)]

[1)] Under reference conditions i.e. measuring fluid=water, ambient and water temperature = 20 °C (68°F), applying the minimum inlet and outlet straight pipe lengths, matched inside pipe dimensions.
* F.S.= of Full scale (10 m/s)

Electrical data	
Operating voltage	18 - 36V DC filtered and regulated (3 wires) Tolerance: ±0.5%
Reversed polarity of DC	protected
Current consumption	≤ 300 mA (at 18V DC)
Digital input DI1	Supply voltage: 18 - 36V DC, input impedance 15 kΩ min. pulse duration: 200 ms Galvanic insulation, protected against polarity reversals of DC and voltage spikes
Digital outputs	
Transistor (DO1)	Type: NPN or PNP (wiring dependent), open collector Function: pulse output (by default), user configurable 0 - 250 Hz, 5 - 36V DC, 100 mA max., duty cycle if frequency > 2 Hz: 1/2; min. pulse duration if frequency < 2 Hz: 250 ms
Relay (DO2 and DO3)	Galvanic insulation, protected against polarity reversals of DC and short-circuits 2 normally open relays, freely adjustable (hysteresis by default), 250V AC/3 A or 30V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load); life span of min. 100000 cycles
Analogue output Current (AO1)	4... 20 mA, sink or source (wiring dependent), 22 mA to indicate a fault max. loop impedance: 1300 Ω at 36V DC, 1000 Ω at 30V DC, 700 Ω at 24V DC, 450 Ω at 18V DC
4... 20 mA output accuracy	±1%

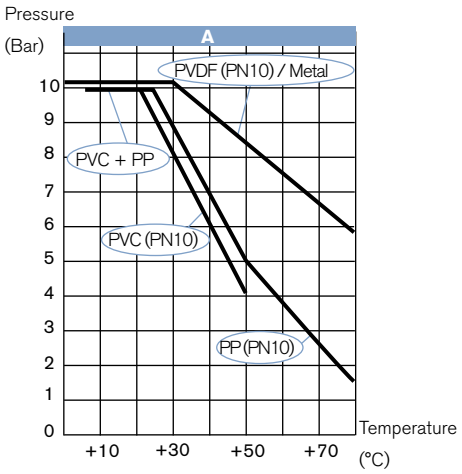
Standards, directives and approvals	
Protection class	IP65, device wired and cable glands tightened and lid screwed tight
Standards and directives	
EMC	EN 61000-6-2, EN 61000-6-3
Low voltage (LVD)	EN 61010-1
Pressure	Complying with article 3 of §3 from 97/23/
Vibration	CE directive.*
Shock	EN 60068-2-6
Approvals	EN 60068-2-27 FDA (only for device with FKM seal and PEEK electrode holder) KTW (only for device with EPDM seal and PVDF sensor holder) Available version with CSA-Approved for US and Canada on request

* For the 97/23/CE pressure directive, the device can only be used under following conditions (dependent on max. pressure, pipe diameter and fluid).

Type of fluid	**Conditions**
Fluid group 1, §1.3.a	Forbidden
Fluid group 2, §1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 200 or PN ≤ 10 or PN*DN ≤ 5000

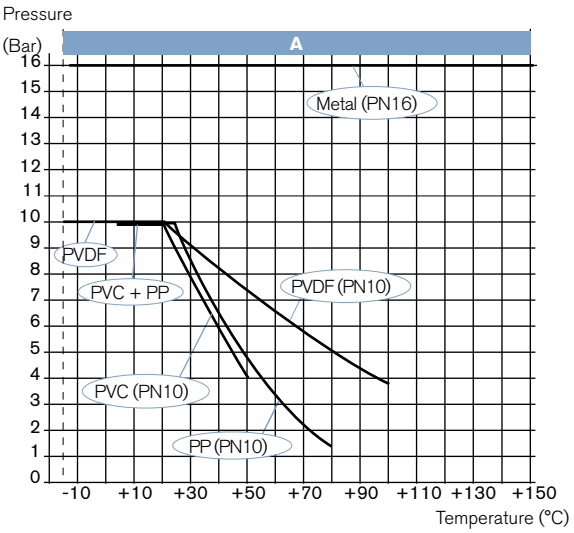
Pressure/Temperature diagram

8045 with a PVDF sensor
(depending on the fitting material)



A : application range for complete device (Fitting + transmitter)

8045 with a stainless steel sensor
(depending on the fitting material)



Ordering Chart (please order fitting separately)

Relays	Housing material	Sensor version	Item no.
No	PC	Short, PVDF	426 498
		Long, PVDF	426 499
2		Short, PVDF	426 506
		Long, PVDF	426 507
No	PPA	Short, Stainless Steel (FDA)	449 670
		Long, Stainless Steel (FDA)	449 672
2		Short, Stainless Steel (FDA)	449 671
		Long, Stainless Steel (FDA)	449 673

Note

Delivered with 1 set 551 775 and 1 EPDM seal.

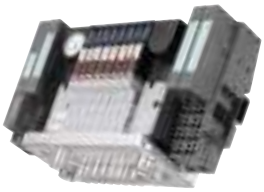
To select a complete device the following items need to be ordered:

- Product no. of the desired flow meter for Type 8045
- Product no. of the Type S020 fitting, for gauges with G 2" connector, must be ordered separately

Drinking Water made simple.

Clean drinking water is the elixir of life. The new reliable solutions from Bürkert make process automation simple. With various options for connectivity – including point-to-point wiring, bus communications and direct mounting into the cabinet without internal pneumatic tubing. Saving space and installation effort – refreshingly simple!

AirLINE: As flexible as your automation needs. Perfect for pure water and your peace of mind.



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Full bore INLINE Magmeter

DN3-150 mm

- High frequency sampling
- Flow or Batch Control
- Compact or remote version
- 3 different electronics can be connected to 3 different types of sensors

Shown is the remote flanged sensor and the hygienic clamp compact version

These full bore magmeters accurately measure the flow of liquids with conductivities as low as 5 µS/cm with or without solids. Varied application environments such as water, wastewater, sludge, slurries, pastes, acids, alkalis, juices, fruit pulp can easily be handled. This extremely robust, time tested design incorporates the latest electronics and when combined with a valve as the actuating element they can control high-precision dosing operations.

System Architecture

SO51 SO55 SO56	SE56 SE56 SE56	8051 8055 8056

Technical Data (with standard compact version SE56)

	8051	8055	8056
Pipe diameter	DN03 to DN20	DN25 to DN200 [to DN2000]*	DN03 to DN100
Measuring range	0… 10 l/h to 0… 12500 l/h	0… 0.72 m³/h to 0… 1130 m³/h	0… 10 l/h to 0… 280 m³/h
Process connection	Thread ISO 228-1, NPT (DIN 11851, SMS 1145, Clamp ISO 2852 or BS 4825, Flanges DIN 2501, ANSI on request)	S054: wafer - S055: Flange EN1092-1, ANSI B16-5, [JIS]*	DIN11851, Clamp ISO2852 or Clamp BS4825 [SMS1146 (from DN10)]*
Medium temperature	see datasheet	see datasheet	see datasheet
Medium pressure max.	PN16 (232 PSI) (PN40 (580 PSI), on request)	PN16 (232 PSI) (with PP lining) or [up to PN64 (928 PSI) (with Ebonite or PTFE lining)]*	PN16 (232 PSI)
Vacuum resistance	200 mbar (2.9 PSI) absolute at 100 °C (212 °F)	200 mbar (2.9 PSI) absolute at 100 °C (212 °F)	200 mbar (2.9 PSI) absolute at 100 °C (212 °F)
Accuracy [1]	± 0.2% of reading (SE56 standard; SE56 blind) ± 0.8% of reading (SE56 basic)	± 0.2% of reading (SE56 standard; SE56 blind) ± 0.8% of reading (SE56 basic)	± 0.2% of reading (SE56 standard; SE56 blind) ± 0.8% of reading (SE56 basic)
Repeatability	± 0.1% (SE56 standard; SE56 blind) ± 0.2% (SE56 basic)	± 0.1% (SE56 standard; SE56 blind) ± 0.2% (SE56 basic)	± 0.1% (SE56 standard; SE56 blind) ± 0.2% (SE56 basic)
Minimum conductivity	5 µS/cm (or 20 µS/cm with demineralized water)	5 µS/cm (or 20 µS/cm with demineralized water)	5 µS/cm (or 20 µS/cm with demineralized water)
Environment			
Ambient temperature with			
SE56 standard	-20 to 60 °C (operating and storage)	-20 to 60 °C (operating and storage)	-20 to 60 °C (operating and storage)
SE56 basic	-10 to 50 °C (operating) -20 to 50 °C (storage)	-10 to 50 °C (operating) -20 to 50 °C (storage)	-10 to 50 °C (operating) -20 to 50 °C (storage)
SE56 blind	-20 to 40 °C (operating and storage)	-20 to 40 °C (operating and storage)	-20 to 40 °C (operating and storage)
Standard			
Protection class	IP65 and IP67 (compact version, SE56 standard or SE56 blind) IP65 (remote version, SE56 standard) IP68 (remote version and junction box filled with resin, SE56 standard) IP65 (compact version, SE56 basic)		
Norms			
EMV	EN 61326-1,		
Emission / Immunity	EN 55011 (Group 1, Class B) / IEC 1000-4-2/3/4/5/6/11		
Safety	EN 61010		

[1] under reference conditions: water temperature = 20°C, ambient temperature = 25°C, constant flow rate during the test, liquid speed > 1 m/s
* on request

Ordering Chart

Electronics for electromagnetic flowmeters - SE56	Item no.
Stainless steel	558 306
Aluminium	558 747

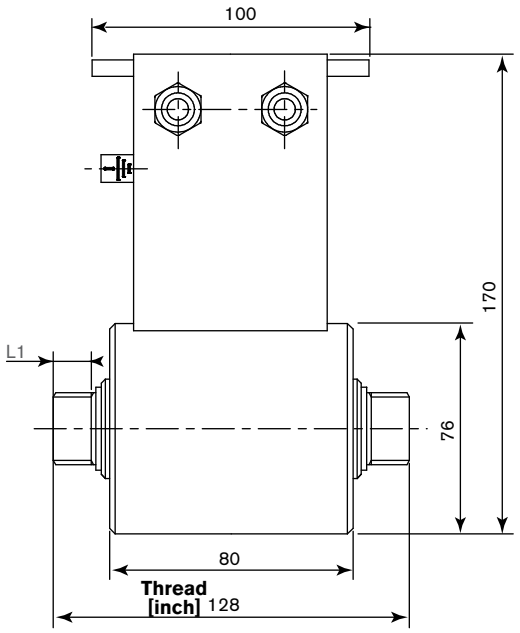
INLINE Flow Meter				
Connection [inch]	**Orifice [mm]**	**Flow Range**	**Lining**	**Item no.**
ISO 228-1 Inline sensor fitting - S051 - Stainless steel body				
1/4	3	0 - 250 l/h	PTFE	554 321
3/8	6	0 - 1000 l/h	PTFE	553 065
1/2	10	0 - 3000 l/h	PTFE	553 374
3/4	15	0 - 6000 l/h	PTFE	553 481
1	20	0 - 12500 l/h	PTFE	553 539
DIN 2501 Inline sensor fitting - S055 - Carbon steel body				
1	25	0 - 18 m^3/h	PP	553 540
1 1/2	40	0 - 45 m^3/h	PP	553 542
2	50	0 - 72 m^3/h	PP	553 485
2 1/2	65	0 - 120 m^3/h	PP	553 393
3	80	0 - 180 m^3/h	PP	553 394
4	100	0 - 280 m^3/h	PP	553 489
6	150	0 - 640 m^3/h	PP	557 512
BS4825 Hygienic clamp Inline sensor fitting - S056 - Stainless steel body				
1/8	3	0 - 250 l/h	PTFE	559 786
1/4	6	0 - 1000 l/h	PTFE	553 325
3/8	10	0 - 3000 l/h	PTFE	554 350
1/2	15	0 - 6000 l/h	PTFE	553 533
3/4	20	0 - 12500 l/h	PTFE	553 534
1	25	0 - 18 m^3/h	PTFE	553 535
1 1/2	40	0 - 45 m^3/h	PTFE	553 536
2	50	0 - 72 m^3/h	PTFE	553 537
2 1/2	65	0 - 120 m^3/h	PTFE	553 538
3	80	0 - 180 m^3/h	PTFE	559 791

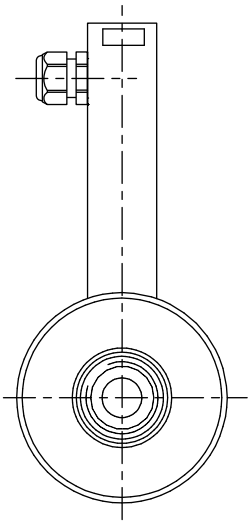
Options

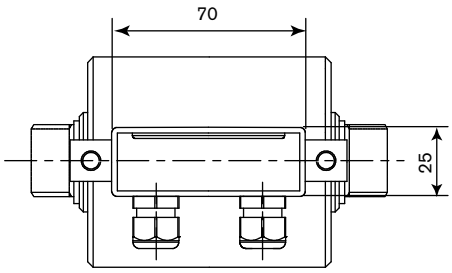
- Various sealing materials
- Larger sizes are available as standard
- Individual calibration certificate
- Remote versions (10/20 m cable, IP68), blind version
- St.St. body and EN or ANSI/DIN flanges for S055
- PTFE lining and PN40 pressure class for S054 and S055
- 2 relay outputs NO/NC 2A-250V AC, 60W 125V AC
- Hart, Profibus, RS232, RS485

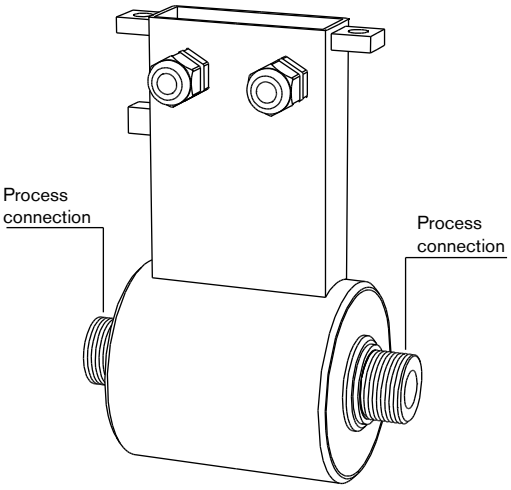
Dimensions [mm] of Type S051 sensor fitting (without full lining)

NOTE: Dimensions of SE56 electronics, see page 454





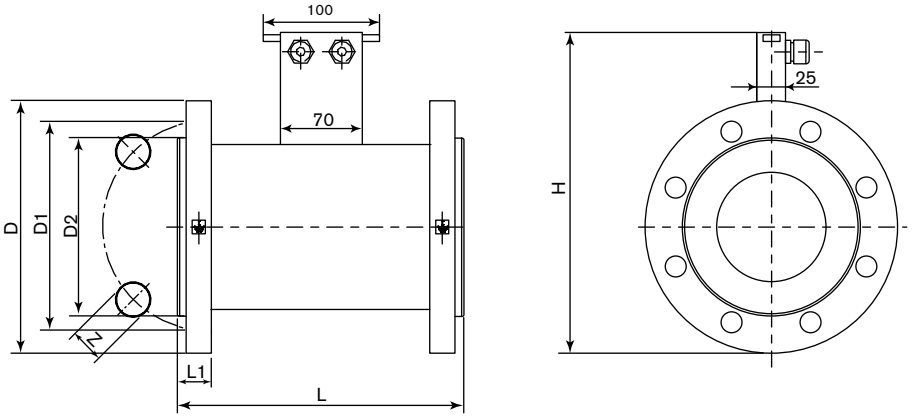




DN [mm]	Thread [inch]	L1 [mm]
03	G or NPT 1/4”	16.4
06	G or NPT 3/8”	16.4
10	G or NPT 1/2”	17.4
15	G or NPT 3/4”	20.0
20	G or NPT 1”	20.0

Dimensions [mm] of Type S055 sensor fitting – compact flanges version

NOTE: Dimensions of SE56 electronics, see page 454

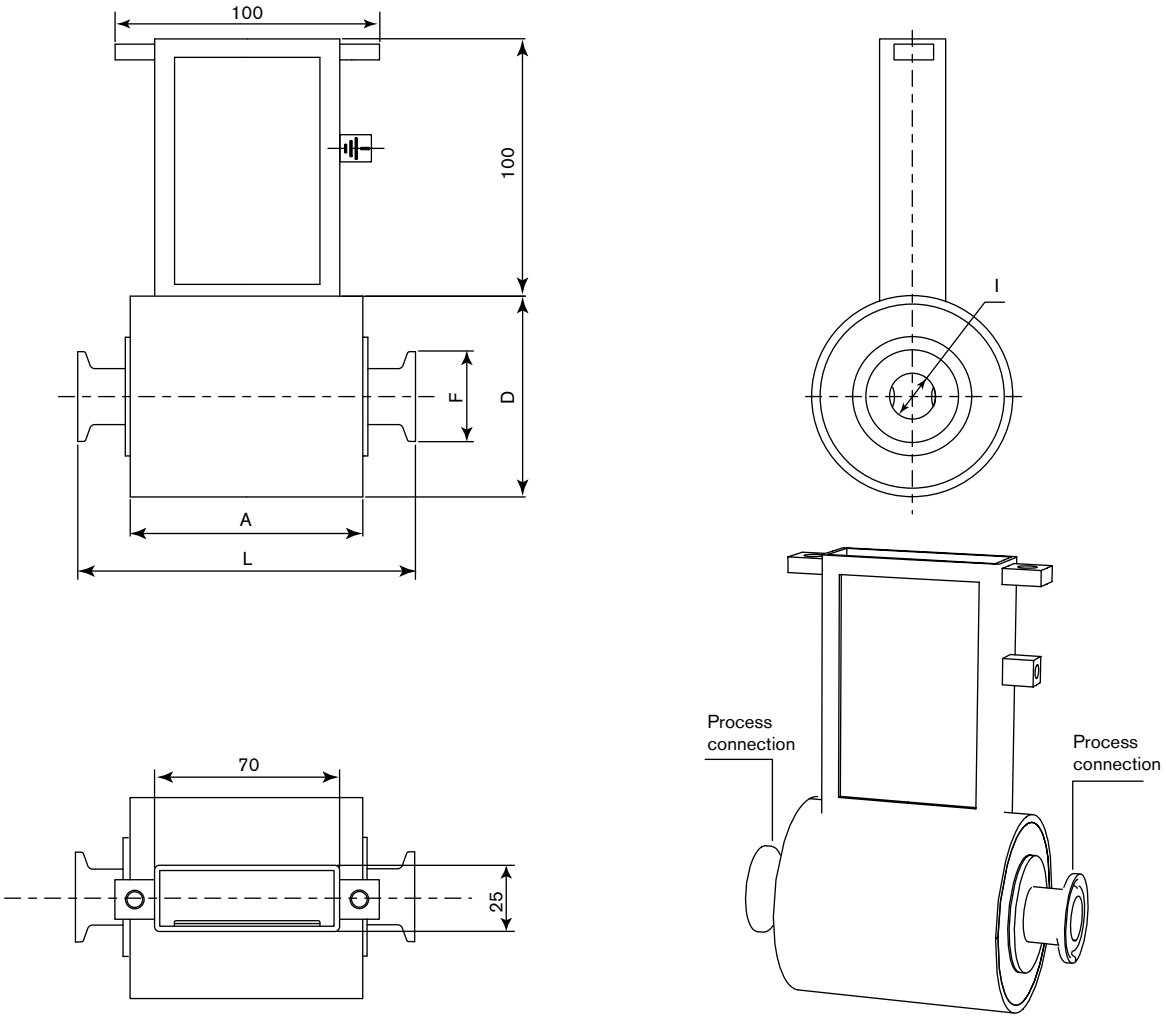


S055 compact or remote, with flanges PN16

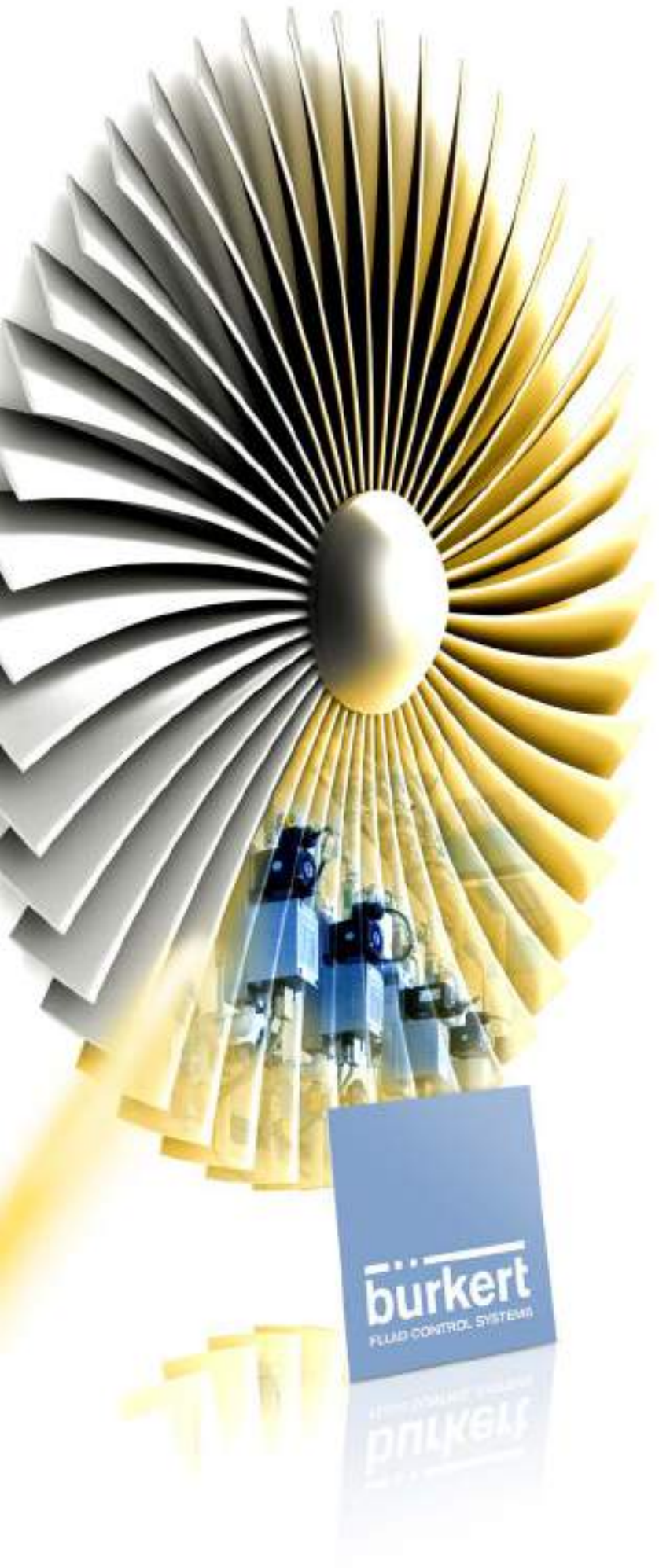
DN	H	L	Standard	L1	Z	D2	D1	D
25	185 182	200	EN1092-1 ANSI 150 RF	18 16.3	4 x 14 4 x 15.9	68 50.8	85 79.4	115 107.9
40	213 202	200	EN1092-1 ANSI 150 RF	18 19.5	4 x 18 4 x 15.9	88 73	110 98.4	150 127
50	228 222	200	EN1092-1 ANSI 150 RF	18 21.1	4 x 18 4 x 19	102 92.1	125 120.7	165 152.4
65	248 245	200	EN1092-1 ANSI 150 RF	18 24.3	4 x 18 4 x 19	122 104.8	145 139.7	185 177.8
80	263 258	200	EN1092-1 ANSI 150 RF	20 25.9	8 x 18 4 x 19	138 127	160 152.4	200 190.5
100	283 287	250	EN1092-1 ANSI 150 RF	20 25.9	8 x 18 8 x 19	158 157.2	180 190.5	220 228.6
150	344 341	300	EN1092-1 ANSI 150 RF	22 27.4	8 x 22 8 x 22.2	212 215.9	240 241.3	285 279.4

Dimensions [mm] of Type S056 sensor fitting - Process connection according to Clamp ISO2852 or BS4825

NOTE: Dimensions of SE56 electronics, see page 454



DN	A	L	D	Standard	F	I
03	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
06	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
10	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
15	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	17.2 15.85
20	77	128	76	Clamp ISO2852 Clamp BS4825	34 50.5	21.3 22.2
25	100	180	76	Clamp ISO2852 Clamp BS4825	50.5 50.5	22.6 22.2
40	100	180	89	Clamp ISO2852 Clamp BS4825	50.5 50.5	35.6 34.9
50	100	180	114	Clamp ISO2852 Clamp BS4825	64 64	48.6 47.6
65	100	180	140	Clamp ISO2852 Clamp BS4825	77.5 77.5	60.3 60.3
80	100	200	140	Clamp ISO2852 Clamp BS4825	91 91	72.9 72.9



Barrier Coating made simple.

Some like it very hot. When it comes to Thermal Spraying, every successful solution starts with specific parameters for powder feeding and process gases. With the compact and modularly calibrated systems from Bürkert, highest quality in thermal barrier coating is simply guaranteed. Besides exhibiting more precision, robustness and reliability, they also reduce resources, costs, weight and nitrogen oxide emissions.

The MFC 8626: Simply precise and fast, even when things get hot

We make ideas flow.

www.burkert.com

Flowmeter with threshold detector for highly viscous mediums

DN15-100 mm

- Indication, monitoring, transmitting and On/Off control in one device
- Selectable outputs (transistor or relay)
- Automatic calibration: Teach-In
- Process value output: 4-20 mA

Complete sensor consisting of
Type SE32 and fitting Type S070

This positive displacement flowmeter/threshold detector with display is designed for use in slightly viscous fluid like glue, honey or oil and specially to switch a valve and to establish a monitoring system or an On/Off control loop. The switching points can be configured with the 3-keys below the display. The 8072 is available with On/Off output, or with 4-20 mA process value outputs.

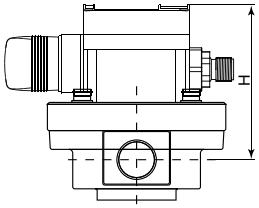
Technical Data

General data	
Compatibility	With fittings S070 (see corresponding data sheet)
Materials	
Housing, cover	PC, glass fibre reinforced
Front panel folio / Screws	Polyester / Stainless steel
Cable plug, connector M12	PA
Wetted parts materials	
Fitting	Aluminium, stainless steel (316F/1.4401)
Rotor	PPS, Aluminium, stainless steel (316F/1.4401)
Shaft / Seal	Stainless steel / FKM or FEP/PTFE
Display	8 digit LCD with backlighting
Electrical connections	Cable plug acc. to EN 175301-803 Free positionable male M12 connector, 5 pins or male M12 connector, 8 pins
Voltage supply cable	0.5 mm² max. cross section; max. 100 m length, shielded
Complete device data (fitting S070 + electronic module SE32)	
Pipe diameter	DN15-100 mm
Measuring range	2-1200 l/min (0.26-320 gpm) for viscosity > 5 mPa.s 3-616 l/min (0.78-320 gpm) for viscosity < 5 mPa.s
Medium temperature	
Fitting in aluminium	0 °C to +80 °C
Fitting in stainless steel	0 °C to +100 °C
Fluid pressure max.	55 bar (threaded process connection) 55 bar [1] 18 bar / 12 bar / 10 bar
Viscosity	1 Pa.s max. (higher on request)
Accuracy*)	±1% of Reading
Operating mode	Threshold: window or hysteresis
Repeatability*)	≤ 0.03% of Reading

[1] or in accordance to the value of the used flanges

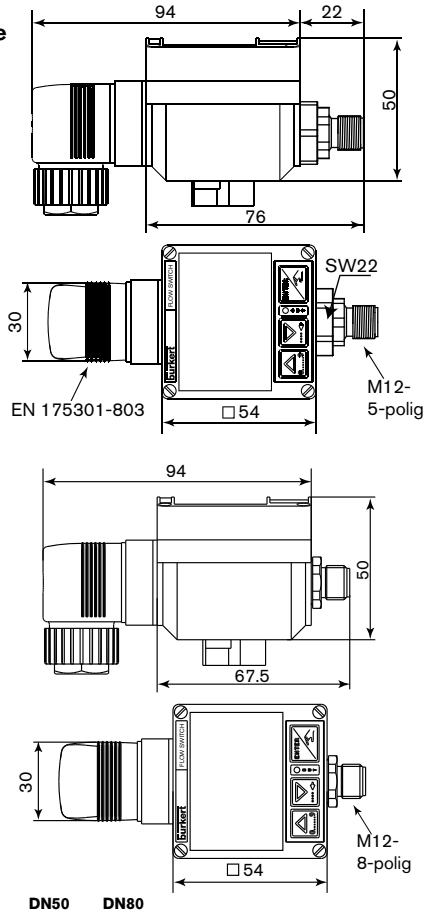
*) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

Envelope Dimensions [mm] (see datasheet for details)



DN	H
15	85
25	100
40	117
50	135
80	175
100	176

Electronics module SE32



DN15 DN25 DN40 DN50 DN80
Threaded connection

DN25 DN40 DN50 DN80 DN100
Flanged connection

Ordering Chart

Orifice DN [mm]	Process connection	Flow rate > 5 cps	Flow rate < 5 cps	Body material	Oval wheels material	Seal material	Item no.
Fitting S070							
15	G 1/2"	2 - 30 l/min	3 - 25 l/min	Aluminium	PPS	FKM	443 985
				Stainless steel	Stainless steel	FKM	443 990
	NPT 1/2"	2 - 30 l/min	3 - 25 l/min	Aluminium	PPS	FKM	443 995
				Stainless steel	Stainless steel	FKM	444 000
25	G 1"	6 - 120 l/min	10 - 100 l/min	Aluminium	PPS	FKM	443 986
				Stainless steel	Stainless steel	FKM	443 991
	NPT 1"	6 - 120 l/min	10 - 100 l/min	Aluminium	PPS	FKM	443 996
				Stainless steel	Stainless steel	FKM	444 001
	25 mm DIN 16 Flange	6 - 120 l/min	10 - 100 l/min	Aluminium	PPS	FKM	553 637
				Stainless steel	Stainless steel	FKM	553 634
	1" ANSI 150 LB Flange	6 - 120 l/min	10 - 100 l/min	Aluminium	PPS	FKM	553 636
				Stainless steel	Stainless steel	FKM	553 633
40	G 1 1/2"	10 - 250 l/min	15 - 235 l/min	Aluminium	PPS	FKM	443 987
				Stainless steel	Stainless steel	FKM	443 992
	NPT 1 1/2"	10 - 250 l/min	15 - 235 l/min	Aluminium	PPS	FKM	443 997
				Stainless steel	Stainless steel	FKM	444 002
	40 mm DIN 16 Flange	10 - 250 l/min	15 - 235 l/min	Aluminium	PPS	FKM	443 988
				Stainless steel	Stainless steel	FKM	443 993
	1 1/2" ANSI 150 LB Flange	10 - 250 l/min	15 - 235 l/min	Aluminium	PPS	FKM	443 998
				Stainless steel	Stainless steel	FKM	444 003
50	G 2"	15 - 350 l/min	30 - 300 l/min	Aluminium	PPS	FKM	553 640
	NPT 2"	15 - 350 l/min	30 - 300 l/min	Aluminium	PPS	FKM	553 641
	50 mm DIN 16 Flange	15 - 350 l/min	30 - 300 l/min	Aluminium	PPS	FKM	443 989
				Stainless steel	Stainless steel	FKM	443 994
	2" ANSI 150 LB Flange	15 - 350 l/min	30 - 300 l/min	Aluminium	PPS	FKM	443 999
				Stainless steel	Stainless steel	FKM	444 004
80	G 3"	20 - 733 l/min	66 - 616 l/min	Aluminium	Aluminium	FKM	553 642
	NPT 3"	20 - 733 l/min	66 - 616 l/min	Aluminium	Aluminium	FKM	553 643
	80 mm DIN 16 Flange	20 - 733 l/min	66 - 616 l/min	Aluminium	Aluminium	FKM	553 645
	3" ANSI 150 LB Flange	20 - 733 l/min	66 - 616 l/min	Aluminium	Aluminium	FKM	553 644
100	100 mm DIN 16 Flange	120 - 1200 l/min	–	Aluminium	Aluminium	FKM	553 647
	4" ANSI 150 LB Flange	120 - 1200 l/min	–	Aluminium	Aluminium	FKM	553 646

Note about ordering a complete sensor: Switch 8072 consists of an INLINE Fitting, Type S070, and an Electronic module, Type SE32. Please order the INLINE Fitting and the Electronic module separately!

Ordering Chart

Supply voltage	Inputs	Outputs	Electrical Connection	Item no
Switch electronic module, Type SE32				
12 - 30V DC	none	Transistor NPN	Cable plug DIN EN 175301-803	436 474
		Transistor PNP	Cable plug DIN EN 175301-803	434 871
		Transistor NPN / PNP	5-pin plug M12 (adjustable)	436 473
		Relay	5-pin plug M12 (adjustable) and cable plug DIN EN 175301-803	436 475
	4 - 20 mA1)	4 - 20 mA2) + Relay	8-pin plug M12 (adjustable) and cable plug DIN EN 175301-803	444 699

[1] External setpoint [2] Process value

Accessories

Description	Item no.
Female M12 connector, 5 pins, with plastic threaded locking ring	917 116
Female M12 connector, 5 pins, moulded on cable (2 m, shielded)	438 680
Female M12 connector, 8 pins, with plastic threaded locking ring	444 799
Female M12 connector, 8 pins, moulded on cable (2 m, shielded)	444 800
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT 1/2" reduction without cable gland (Type 2509)	162 673

Spare parts for fitting	Orifice		Material	Item no.
	[mm]	[inch]		
Oval Wheel	DN 15	1/2	PPS	550 933
			Stainless steel	550 934
	DN 25	1	PPS	550 937
			Stainless steel	550 938
	DN 40	1 1/2	PPS	550 941
			Stainless steel	550 942
	DN 50	2	PPS	550 945
			Stainless steel	550 946
O-Ring	DN 15	1/2	EPDM	550 929
			FKM	550 930
	DN 25	1	EPDM	550 935
			FKM	550 936
	DN 40	1 1/2	EPDM	550 939
			FKM	550 940
	DN 50	2	EPDM	550 943
			FKM	550 944

Clean Utilities made simple.

Not only clean, but pure. When producing pharmaceuticals, hygiene must take top priority. The ELEMENT diaphragm valves from Bürkert make your life simpler: featuring a hygienic design, easy cleaning and minimum space requirements, they can be used flexibly with optimal flow for maximum process safety. Perfect for high process yields and your peace of mind.

ELEMENT diaphragm valves:

A highlight in our system and more than just a hygienic solution.

We make ideas flow.

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Ultrasonic flow meter for continuous measurement of water

- Ultrasonic flowmeter using transit time method
- Dynamic range ≥ 1:250
- Low pressure drop
- No flow-settling section necessary in the inlet and/or outlet

The 8081 ultrasonic flowmeter is intended for the measurement of water flows which may be slightly charged with contaminants. It consists of an electronic module and a brass fitting with a built-in measuring tube. It enables a control loop to be established. The electrical connection is made via an 5-pin M12 fixed connector.

The flowmeter features, depending on the version:

- a pulse output or
- a pulse output and a 4-20 mA current output.

Each version is available for 5 flow ranges:

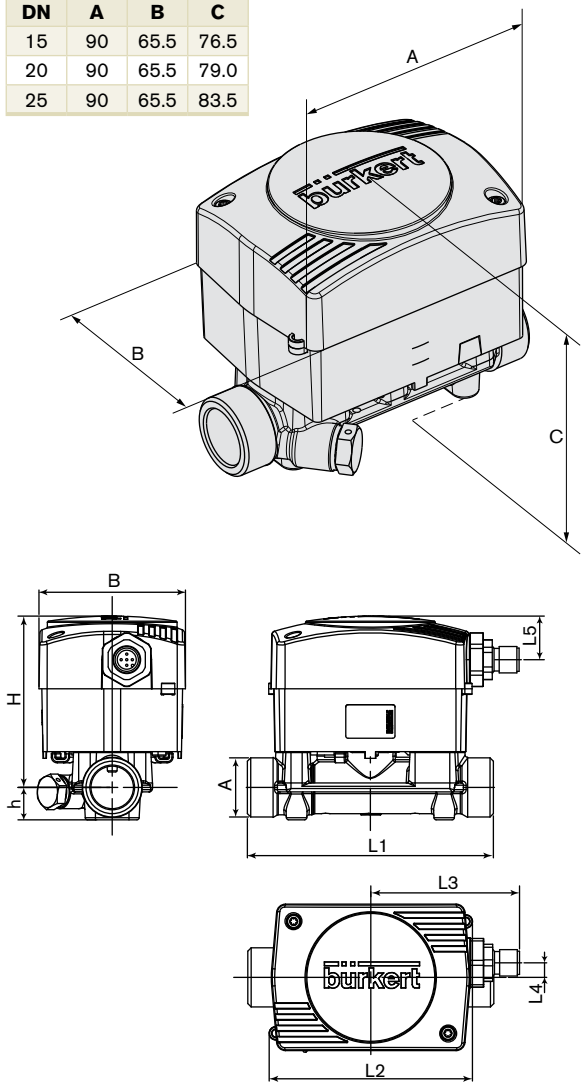
- model QN 0.6 DN15: 0.06 to 20 l/min (nominal flow rate 0.6 m3/h namely 10 l/min)
- model QN 1.5 DN15: 0.1 to 50 l/min (nominal flow rate 1.5 m^3/h namely 25 l/min)
- model QN 2.5 DN20: 0.16 to 82 l/min (nominal flow rate 2.5 m^3/h namely 41 l/min)
- model QN 3.5 DN25: 0.6 to 116 l/min (nominal flow rate 3.5 m^3/h namely 58 l/min)
- model QN 6.0 DN25: 1 to 200 l/min (nominal flow rate 6.0 m3/h namely 100 l/min)

Technical Data

General data	
Process connection	G or NPT External thread; 3/4", 1" or 1 1/4"
Materials	
Housing, cover	PPS
Fixed connector M12	PA
Seal	Silicone
Materials wetted parts	
Fitting	Brass
Measuring tube	PES
Seal	EPDM
Electrical connection	5-pin M12 male fixed connector for female 5-pin M12 cable plug (not provided)
Connection cable	1.5 mm^2 max. cross-section
Complete device data (fitting + electronic module)	
Pipe diameter	DN15-25
Measuring range	0.06 to 200 l/min
Measuring element	2 ultrasound emitter-receiver cells
Medium temperature	+5 °C to +90 °C

Envelope Dimensions [mm] (see datasheet for details)

DN	A	B	C
15	90	65.5	76.5
20	90	65.5	79.0
25	90	65.5	83.5



DN	A	B	H	h	L1	L2	L3	L4	L5
15	G / NPT 3/4"	65.5	76.5	14.5	110	90	67	6.5	19.5
20	G / NPT 1"	65.5	79.0	18	130	90	67	6.5	19.5
25	G / NPT 1 1/4"	65.5	83.5	23	260	90	67	6.5	19.5

Technical Data (continued)

Fluid pressure max.	PN16
Accuracy (Flowrate)	≤ (0.01% of F.S.* + 2% of measuring value)[1)]
Repeatability	≤ 1%

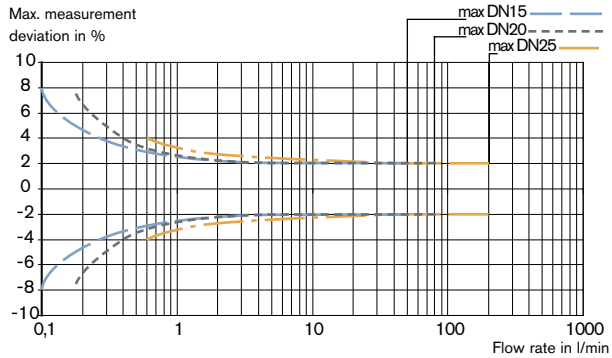
* F.S. = Full scale (see flow range on accuracy diagram)
[1)] Under reference conditions i.e. measuring fluid = water, ambient and water temperature = +20 °C.

Electrical data	
Power supply (V+)	12 - 36 V DC
Current consumption	Own consumption: < 4 mA Consumption with load: < 1 A
Reversed polarity of DC	Protected
Voltage peak	Protected
Short circuit	Protected for transistor output
Output	
Pulse (transistor)	
Version without current output	NPN (as default setting) or PNP (on request), open collector, 700 mA max., 5 mA min., NPN output: 0.2 - 36 V DC
version with current output	PNP (as default setting) or NPN (on request), open collector, 700 mA max., 5 mA min., PNP output: supply voltage (V+)
Current	4... 20 mA (sourcing mode and PNP transistor as default setting, sinking mode and NPN transistor on request) loop resistance max. : 1100W at 36V DC 610W at 24V DC; 100W at 12V DC
Scaling	
Pulse (Transistor)	K-factor: 500 Pulse/Litre (version QN 0.6 and 1.5) 200 Pulse/Litre (version QN 2.5 - 3.5) 100 Pulse/Litre (version QN 6.0)
Current	4 mA correspond to 0 l/min (by default) or to Tmin of temperature range (on request) 20 mA correspond to Qmax. of flow range (by default) or to Tmax. of temperature range (on request)
Environment	
Ambient temperature	5 °C to +55 °C (41 to 131 °F) (operating and storage)
Relative humidity	≤ 80 %, without condensation
Standards, directives and approvals	
Protection class	IP65 with M12 cable plug plugged-in and tightened
Standards, directives	
EMC	EN 61000-6-3, EN 61000-6-2
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27
Approval / Certificate on request	2.2 Certificate; Calibration Certificate

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

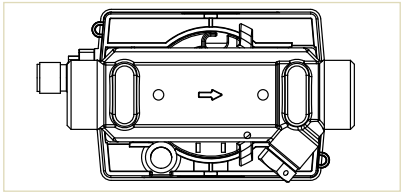
Type of fluid	**Conditions**
Fluid group 1, §1.3.a	Forbidden
Fluid group 2, §1.3.a	Allowed (PN*DN ≤ 1000)
Fluid group 1, §1.3.b	Forbidden
Fluid group 2, §1.3.b	Allowed

Accuracy diagram

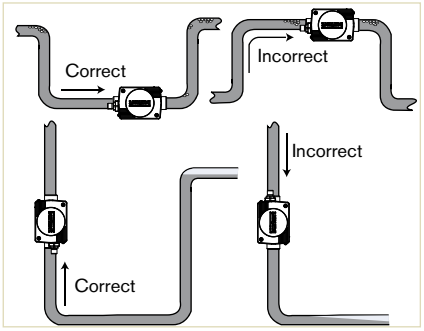


Installation

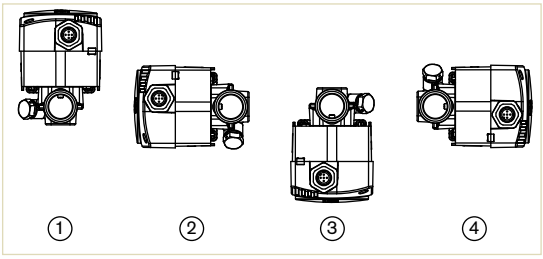
The 8081 ultrasound flowmeter can be fitted onto a horizontal or vertical pipe.
When horizontally mounted, the max. fluid temperature is 90°C. But the max. fluid temperature must be reduced to 80°C when the electronic (black enclosure) is turn upwards. When vertically mounted the max. fluid temperature is also 80°C.



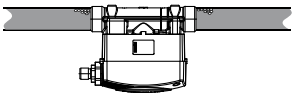
The correct direction of fluid flow in the pipe is indicated with an arrow, engraved on the underside of the fitting.



Minimum upstream and downstream distances are not necessary.
The 8081 works correctly when the pipe is full and free of any air bubbles near the flowmeter. In presence of bubbles in the pipe, the left installation no.1 should be avoid.



If the absence of any air bubbles cannot be guaranteed, the device should be fitted on a horizontal pipe, with the electronic enclosure facing down. This way, the bubbles will not interfere with the circulation of ultrasound waves.



It is equally advisable to place stop valves before and after the flowmeter, in order to facilitate the assembly and disassembly of the latter.

Ordering Chart

Model	DN [mm]	Flow range	Process connection	Outputs	Item no.
QN 0.6	15	0.06 up to 20 l/min	External thread G 3/4"	NPN-Pulse	560 131
				PNP-Pulse + 4-20 mA as source	560 113
			External thread NPT 3/4"	NPN-Pulse	560 612
				PNP-Pulse + 4-20 mA as source	560 617
QN 1.5	15	0.1 up to 50 l/min	External thread G 3/4"	NPN-Pulse	559 865
				PNP-Pulse + 4-20 mA as source	559 868
			External thread NPT 3/4"	NPN-Pulse	560 613
				PNP-Pulse + 4-20 mA as source	560 618
QN 2.5	20	0.16 up to 82 l/min	External thread G 1"	NPN-Pulse	559 866
				PNP-Pulse + 4-20 mA as source	559 869
			External thread NPT 1"	NPN-Pulse	560 614
				PNP-Pulse + 4-20 mA as source	560 619
QN 3.5	25	0.6 up to 116 l/min	External thread G 1 1/4"	NPN-Pulse	559 867
				PNP-Pulse + 4-20 mA as source	559 870
			External thread NPT 1 1/4"	NPN-Pulse	560 615
				PNP-Pulse + 4-20 mA as source	560 620
QN 6.0	25	0.4 up to 200 l/min	External thread G 1 1/4"	NPN-Pulse	560 132
				PNP-Pulse + 4-20 mA as source	560 114
			External thread NPT 1 1/4"	NPN-Pulse	560 616
				PNP-Pulse + 4-20 mA as source	560 621

Accessories

Description	Item no.
5 pin M 12 female cable plug moulded on cable (2 m, shielded)	917 116
5 pin M 12 female cable plug with plastic threaded locking ring	438 680

Tuning-Fork Level Switch

G 3/4", G 1" and clamp 2"

- For universal use as overfill or dry run protection system
- Hygienic surface finish
- Extension tubes available

Type 8110

Type 8111

Level switch for liquids with a tuning fork as a sensor element. Simple setup without adjustment makes this perfect for deployment into process environments. This device provides peace of mind from overfill or run dry

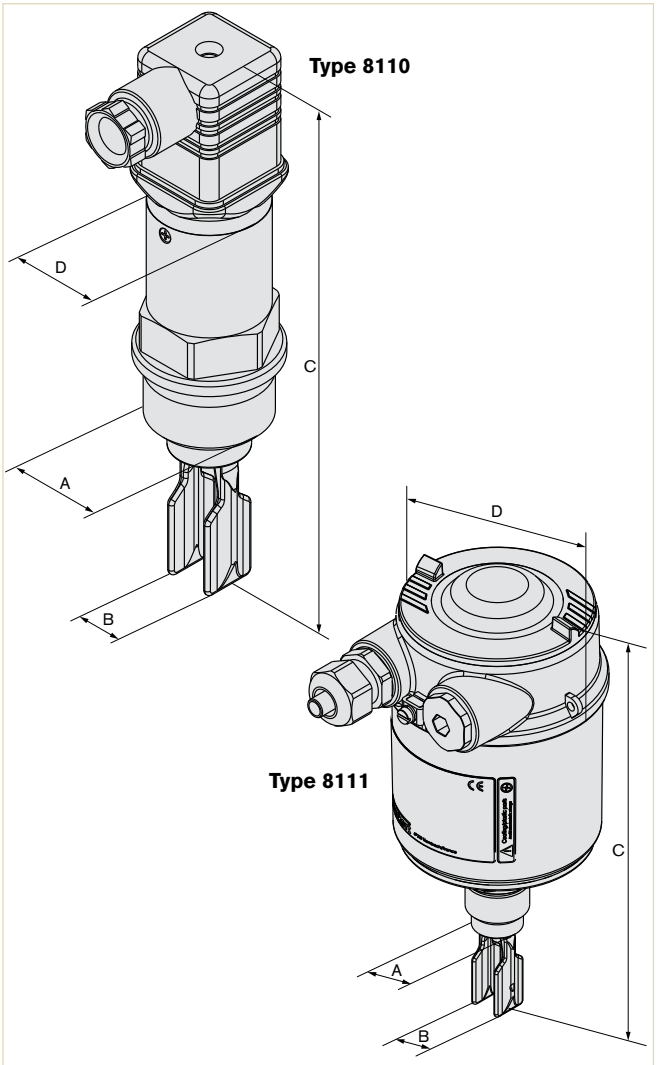
Type 8110 - The small tuning fork (40 mm length) can be used in vessels, tanks or pipes.

Type 8111 - SuperBRIGHT visual output lets the user know the status from a distance.

Technical Data

Type	8110	8111
Process connection	G 3/4", G 1" or Clamp 2"	G 3/4", G 1" or Clamp 2"
Max. fluid temperature	+100 °C G +150 °C Clamp	+150 °C G +150 °C Clamp
Materials	Stainless / PEI housing Stainless steel forks Klingersil® seal	Stainless / PBT housing Stainless steel forks Klingersil® seal
Max. fluid pressure	64 bar	64 bar
Voltage supply	10-55V DC / max. 0.5W	20-253V AC (5 A), 50-60 Hz, or 20-72V DC
Electrical connections	M12	M20 cable glands
Outputs	Transistor output PNP, 250 mA	Relay (DPDT), 2 floating SPDTs
Ingress protection	IP66 and 67	IP66 and 67
Surface finishing quality	Ra < 3.2 µm (thread) Ra < 0.8 µm (clamp)	Ra < 3.2 µm (thread) Ra < 0.8 µm (clamp)
Dynamic viscosity	0.1 to 10000 mPa.s / 0.7 to 2.5 g/cm^3	0.1 to 10000 mPa.s / 0.7 to 2.5 g/cm^3
Medium temperature	-40 °C to 100 °C (150 °C for Clamp process connection)	-50 °C to 150 °C
Medium pressure	-1 to 64 bar	-1 to 64 bar
Accuracy Hysteresis Delay time/ Frequency	 Approx. 2 mm with vertical installation Approx. 500 ms / Approx. 1200 Hz	 Approx. 2 mm with vertical installation Approx. 500 ms / Approx. 1200 Hz
Voltage loss	Max. 1 V DC	
Turn-on voltage	Max. 55 V DC	min.: 10 mV; max.: 253 VAC, 253 V DC
Switching current		min.: 10 mA; max.: 5 A (AC), 1 A (DC)

Envelope Dimensions [mm] (see datasheet for details)



Type	A	B	C	D
8110	3/4" G	21.3	158	31.7
	1" G	21.3	161	31.7
	2" clamp	21.3	165	31.7
8111	3/4" G	16	210	91
	1" G	16	213.	91
	2" clamp	16	213	91

Technical Data (continued)

Type	8110	8111
Power consumption		1 to 8 VA (AC); approx. 1.3 W (DC)
Breaking capacitance		max. 1250 VA, 50 W
Delay time		when immersed: 0.5 s when laid bare: 1s
Blocking current	< 10 µA	
Mode	Min./max changeover by electrical connection Max.: overfill protection - Min.: dry run protection LED indication: green and red	Min./max changeover by electrical connection Max.: overfill protection - Min.: dry run protection
Ambient temperature Operating Storage	 -40 °C to +70 °C -40 °C to +80 °C	
Standard EMC Security	 EN 61326 EN 61010-1	 EN61326 EN61010-1, ATEX[1] EN50014; EN50020; EN50284
Specifications Ex		
Ⓔx - Protection		Categories 1/2G, 2 G
Ⓔx - Certification		Ex ia IIC T6
Conformity specifications[1] Power supply Ui Short circuit rating Ii Power limitation Pi Ambient temperature Internal capacity Ci Internal inductivity Li		 20 V 103 mA 516 mW -40 °C to +85 °C (depend on categories) negligible negligible

[1] homologation certificate PTB 07 ATEX 2004X

Options

8110

- DIN 11851, Flange, SMS
- Higher temperatures on request

8111

- ATEX approvals
- DIN 11851, Flange, SMS
- ECTFE, enamel, Hastelloy C4 or PFA
- Higher temperatures on request

Ordering Chart

Process connection	Electrical connection	Item no.
8110		
G 3/4" ISO 228	Multipin M12	555 290
G 1" ISO 228	Multipin M12	555 292
Clamp 2"	Multipin M12	555 294

Process connection	Electrical connection	Item no.
8111		
G 3/4" ISO 228	2 x M20 glands	558 110
G 1" ISO 228	2 x M20 glands	558 112
Clamp 2"	2 x M20 glands	558 114

Extension tubes are available (see datasheet Type 8112).

Vibrating Level Switch

- For universal use as overfill or dry run protection system
- Setup without adjustment
- For food and beverage industry thanks to surface finishing < 0.8 µm
- ATEX approvals

The 8112 is a vibrating level switch for liquids, using a tuning fork for level detection.

It is designed for industrial use in areas of process technology and can be used in liquids. Typical applications are overfill or dry run protection.

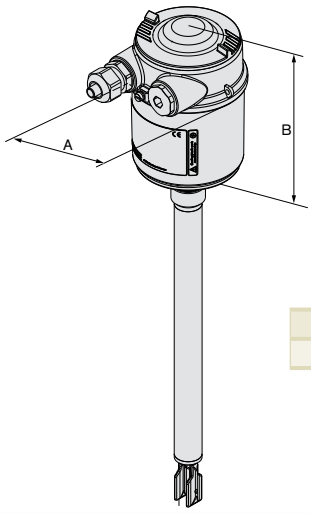
The Type 8112 is available with different sensor length using tube extension. The right length can be adapted thanks to a lock fitting.

Due to the simple and rugged measuring system, the Type 8112 is virtually unaffected by the chemical and physical features of the liquid. It works even under unfavourable conditions such as turbulence, air bubbles, foam generation, buildup or varying products.

Technical Data

Materials	
Housing / Cover / Seal ring	PBT, Stainless steel 316L (1.4435) / PC / EPDM
Wetted parts	
Tuning fork & process fitting	Stainless steel 316L (1.4435)
Extension tube ø 21.3	Stainless steel 316L (1.4435)
Process seal	Klingersil C 4400
Weight	approx. 890 g + approx. 110 g/m (tube extension)
Electrical connections	1 or 2 cable glands M20 x 1.5 (depends on output version)
Process fitting	Thread G, NPT 3/4", G, NPT 1" or Clamp 2"
Surface finishing quality	Ra < 3.2 µm (thread) / Ra < 0.8 µm (Clamp)
Extension tube length	200-1000 mm
Viscosity dynamic	0.1 up to 10000 mPa.s (requirement: with density 1)
Density	0.5 up to 2.5 g/cm³ (selected by DIP switch) or 0.7 up to 2.5 g/cm³
Fluid temperature	-50 °C up to +150 °C
Fluid pressure	-1 to 64 bar
Accuracy	
Hysteresis	Approx. 2 mm with vertical installation
Delay time / Frequency	Approx. 500 ms / Approx. 1200 Hz
Output	Double relay output or NAMUR output
Ambient temperature	-40 °C up to +70 °C (Operating); -40 °C up to +80 °C (Storage)

Envelope Dimensions [mm] (see datasheet for details)



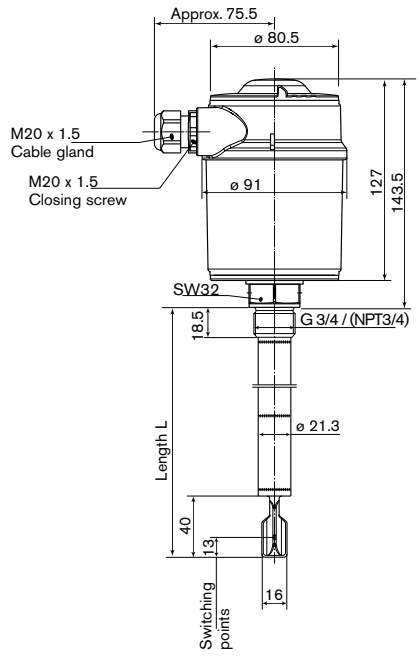
A	B
80.5	127

Electrical data - Sensor with relay output	
Output	Relay (DPDT), 2 floating spdts
Power supply	20 to 253 V AC, 50/60 Hz or 20 to 72 V DC (at U > 60 V DC the ambient temperature must be max. 50 °C (122°F))
Power consumption	1 to 8 VA (AC); approx. 1.3 W (DC)
Turn-on voltage	min.: 10 mV; max.: 253 VAC, 253 V DC
Switching current	min.: 10 mA; max.: 5 A (AC), 1 A (DC)
Breaking capacitance	max. 1250 VA, 50 W
Modes (adjustable)	A = max. detection or overfill protection B = min. detection or dry run protection
Delay time	when immersed: 0.5 s when laid bare: 1s
Standards and approvals	
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	I (relay output); II (NAMUR output)
Standards	
EMC / Security	EN61326 / EN61010-1
ATEX[1)]	EN50014; EN50020; EN50284
NAMUR	IEC 60947-5-6 (EN 50227)

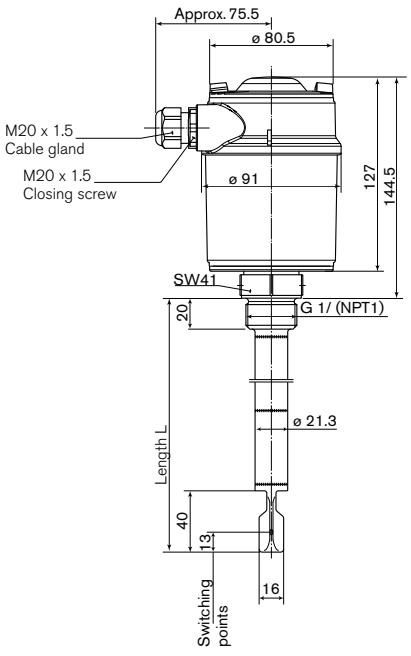
[1)] homologation certificate PTB 07 ATEX 2004X

Envelope Dimensions [mm] (see datasheet for details)

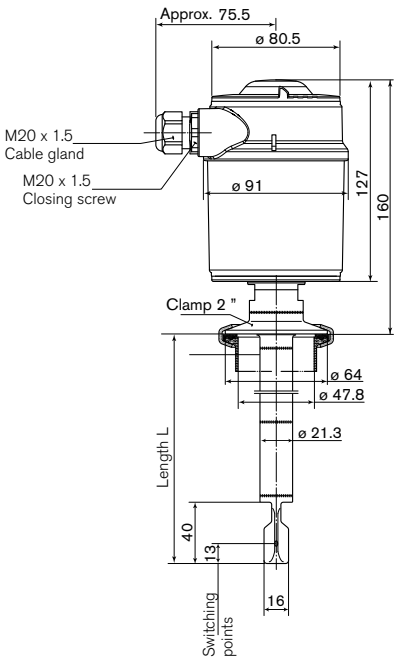
With G or NPT 3/4" connection



With G or NPT 1" connection



With Clamp 2" connection



Ordering Chart

Output	Power supply	Extension tube length [mm]	Port connection	Electrical connection	Item no.
Double relay (DPDT) *	20 - 72 VDC / 20 - 250 V AC (5A)	300	G 3/4"	2 cable glands M20 X 1.5	558 119
		500	G 3/4"	2 cable glands M20 X 1.5	558 121
		1000	G 3/4"	2 cable glands M20 X 1.5	558 123
		300	G 1"	2 cable glands M20 X 1.5	558 125
		500	G 1"	2 cable glands M20 X 1.5	558 127
		1000	G 1"	2 cable glands M20 X 1.5	558 129
		300	Clamp 2"	2 cable glands M20 X 1.5	558 131
		500	Clamp 2"	2 cable glands M20 X 1.5	558 132
		1000	Clamp 2"	2 cable glands M20 X 1.5	558 133

* Double Pole Double Throw

Ordering Chart

Description	Item no.
Lock fitting - only for pressureless handling, -50...150 °C; G 1"	558 218
Lock fitting - only for pressureless handling, -50...150 °C; NPT 1"	558 219
Set with 2 reductions M20 x 1.5 / NPT 1/2" + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551 782

OEM radar measuring device for aggressive medium

- For level measurement up to 20 m, 4-20 mA/Hart - 2 wires
- Adjustable via Display, key operation or PC-Tool with DTM
- ATEX approvals
- Insensitive to variations of temperature, pressure, medium data of the product and gas layers

Type 8136 is a non-contact radar level measuring device for continuous level measurement.

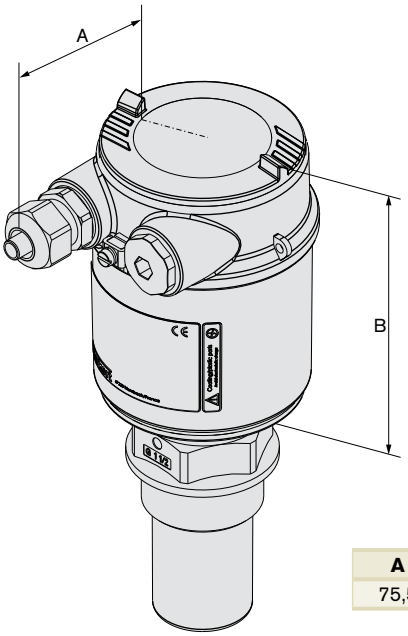
The unit is available in two versions:

- with encapsulated horn antenna particularly suitable for level measurement of aggressive liquids in small vessels.
- with plastic horn antenna particularly suitable for measurement in open flumes or gauge measurement in waters.

Technical Data

Materials	
Housing / Cover	PBT, Stainless steel. 316L / PC
Seal ring / Ground terminal	NBR / St. st. 316Ti/316L (1.4571/1.4435)
Mounting strap / Fixing screws	St. st. 304 (1.4301) / St. st. 316L (1.4435)
Wetted parts	
Encapsulated horn antenna version	
Process connection/Antenna/Seal	PVDF/PVDF (completely encapsulated)/FKM
Plastic horn antenna version	
Process connection	Stainless steel 316L (1.4435)
Horn antenna / Focus lens	PBT-GF30 / PP
Display*	LCD in full dot matrix (option)
Process connection	Thread G 1½" or NPT 1½" (Encapsulated horn antenna version) Mounting strap 170 mm (Plastic horn antenna version)
Max. torque mounting boss	4 Nm (mounting screws - strap on the sensor housing)
Electrical connection	Cable glands M20 x 1.5
Measuring value	Distance between process connection and product surface
Min. dielectric figure	μr > 1.6
Dead zone	50 mm[1)]
Measuring range	0.05 to 10 m (Encapsulated horn antenna ver.) 0 to 20 m (Plastic horn antenna version)
Process temperature	-40 °C to +80 °C
Vessel pressure	-1 to 3 bar (-100 to 300 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5-100 Hz
Temperature coefficient	0.03%/10 K (Average temperature coefficient of the zero signal - temperature error)
Resolution	Max. 1 mm
Frequency	K-band (26 GHZ technology)
Interval	approx. 1 s
Beam angle at 3 dB	22° (Encapsulated horn antenna vers.) - 10° (Plastic horn antenna vers.)
Adjustment time	> 1 s (dependent on the parameter adjustment)
Accuracy	± 2 mm

Envelope Dimensions [mm] (see datasheet for details)



A	B
75,5	123

Technical Data (continued)

Electrical data	
Operating voltage	14 - 36 V DC or 14 - 30 V DC (Ex ia instrument)
Permissible residual ripple	< 100 Hz: Uss < 1 V 100 Hz... 10 kHz: Uss < 10 mV
Output signal	4... 20 mA/HART
Resolution	1.6 μA
Fault signal	current output unchanged 20.5 mA, 22 mA or < 3.6 mA (selectable)
Current limitation	22 mA
Load	see load diagram
Damping (63% of the input variable)	0... 999 s, adjustable

* to be ordered separately

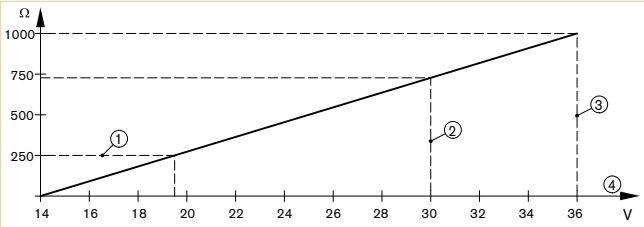
[1)] Encapsulated horn antenna version. In products with low dielectric value up to 50 cm.

Technical Data (continued)

Standards and approvals	
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standard	
EMC	EN61326
Security	EN61010-1
NAMUR	NE 21; NE 43
Approvals	ATEX[2)] : EN60079-0; EN60079-11; EN60079-26

[2)] Certificate PTB 08 ATEX 2002X

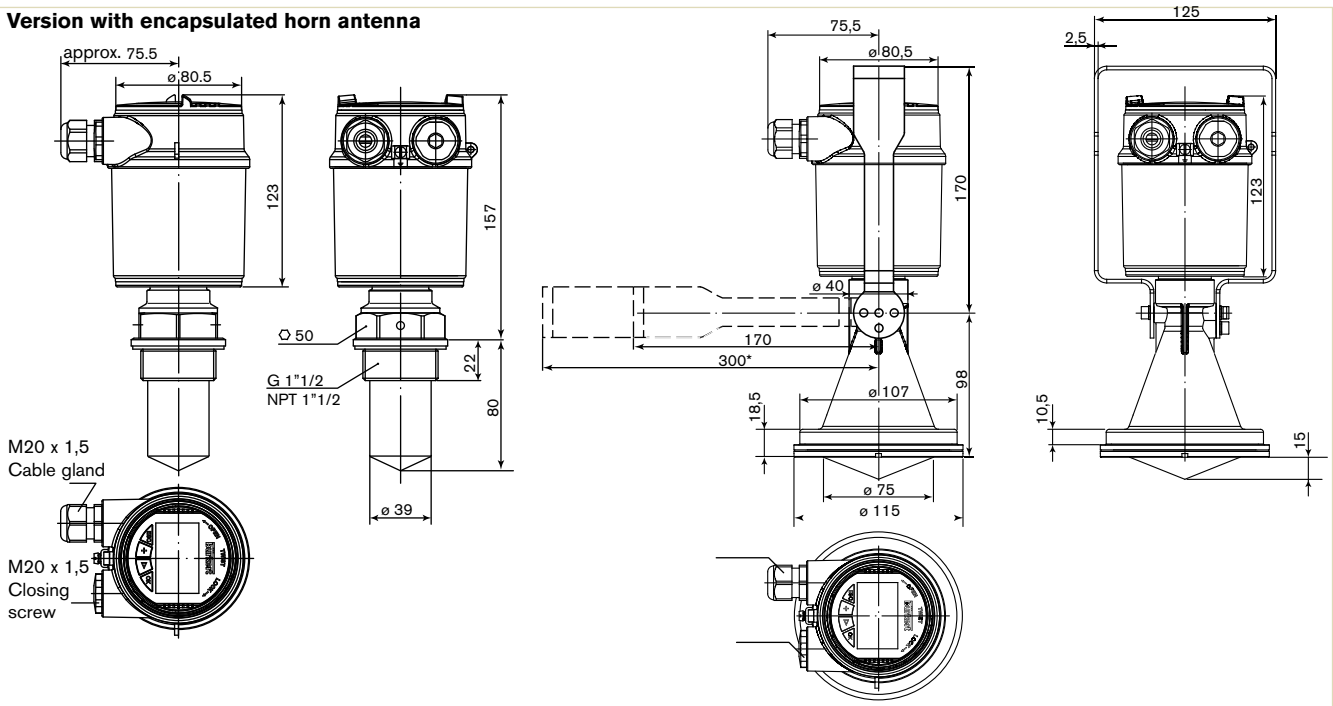
Load diagram



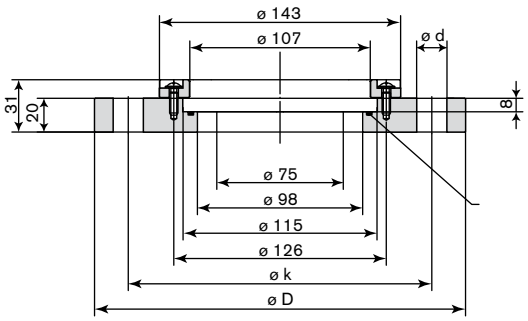
1 HART load
2 Voltage limit Ex ia instrument
3 Voltage limit non-Ex instrument
4 Operating voltage

Envelope Dimensions [mm]

Version with encapsulated horn antenna



Adapter flange* for plastic horn antenna ø 80 mm version



Flange	ø D	ø k	ø d	Number of hole
DN100 PN16	220	180	18	8 x 45° (=360°)
ASME (ANSI B16,5) 4" 150 psi	228,6	190,5	19,1	8 x 45° (=360°)

* The 300 mm mounting bracket of the flange adapter must be ordered separately.

Ordering Chart

Description	Voltage supply	Output	Sensor	Electrical connection	Item no.
Encapsulated horn - 40 mm	14 - 36 V DC	4 - 20 mA/HART (2-wire)	G 1 1/2"	Cable gland M20 x 1.5	560 146
Plastic horn - 80 mm	14 - 36 V DC	4 - 20 mA/HART (2-wire)	Mounting bracket or compression flange	Cable gland M20 x 1.5	560 150

Note: Display not included, must be ordered separately (see accessories)

Accessories

Description	Item no.
Set with 2 reductions M20 x 1.5/NPT ½" + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551 782
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Hart-USB Modem	560 177
Mounting strap 300 mm	559 839
Adapter flange DN 100 PN 16 FKM / PPH	560 437
Adapter flange ASME (ANSI B16.5) 4" 150PSI FKM / PPH	560 436

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Radar Level Transmitter for Liquids

G thread or flange connection

- For filling level measurement up to 30 m
- High Pressure Version
- Two-wire version
- Adjustable via display and buttons as well as PC-Tool with DTM

Radar level transmitter for aggressive media and high pressure. A sleek, compact stainless steel design incorporates a 2-wire HART transmitter which is easily PC configurable.

Technical Data

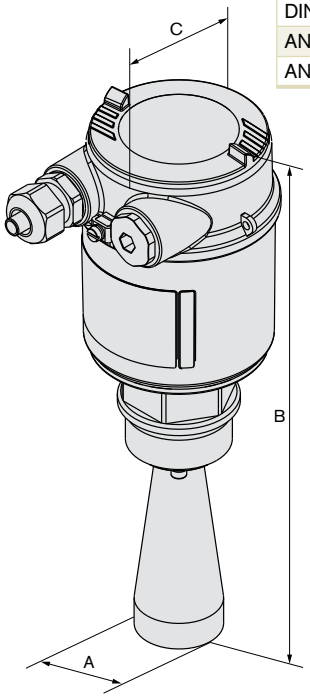
Type	8137	8138
General data		
Housing / Cover	PBT, Stainless steel 316L / PC	
Seal ring / Ground terminal	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)	
Seal	KLINGERSIL® C-4400 (8137), EPDM (8138)	
Antenna / cone	Stainless steel 316L (8137), TFM™ PTFE (8138) / PTFE (8137)	
Seal (antenna system)	FKM (8137), EPDM (8138)	
Display	LCD in full dot matrix*	
Ambient temperature	-40 °C to +80 °C	
Voltage supply	2-wire, 14 to 36 V DC	
Current consumption max.	22 mA	
Electrical connections	Cable glands M20 x 1.5	
Outputs	4-20 mA/HART	
Dead zone	50 mm	
Measuring range (40 mm antenna)	50 mm to 10 m	
Process temperature	-40 °C to +130 °C	-40 °C to +200 °C
Vessel pressure	-1 to 40 bar (-100 to 4000 kPa) or according to flange rules	-1 to 16 bar (-100 to 1600 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5 to 100 Hz	
Accuracy	± 3 mm	
Min. dielectric	εr > 1.6	
Temperature coefficient	0.03%/10K (Average temperature coefficient of the zero signal - temperature error)	
Resolution	max. 1 mm	
Frequency	K-band (26 GHZ technology)	
Interval	approx. 1 s	
Beam angle at 3 dB	22° (antenna with ø 40 mm)	18° (range 0.05 to 10 m) - 10° (range 0.05 to 20 m)
Adjustment time	> 1 s (dependent on the parameter adjustment)	
Accuracy	± 2 mm	
Ingress protection	IP66, IP67	

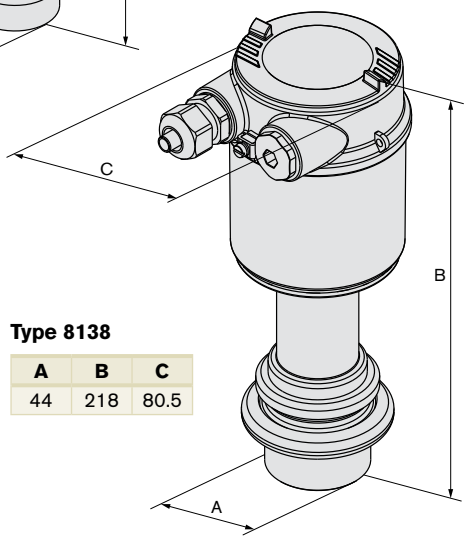
* must be ordered separately.

Envelope Dimensions [mm] (see datasheet for details)

Type 8137

Standards	DN	A	B	C
DIN 2501	50	40	279	80.5
DIN 2501	100	75	395	80.5
ANSI B16.5	2"	40	279	80.5
ANSI B16.5	4"	75	395	80.5





Type 8138

A	B	C
44	218	80.5

Technical Data (continued)

Type	8137	8138
Electrical Specifications		
Operating voltage	14 - 36 V DC or 14 - 30 V DC (Ex ia instrument)	
Permissible residual ripple	< 100 Hz: Uss < 1 V 100 Hz... 10 kHz: Uss < 10 mV	
Output signal	4... 20 mA/HART	
Resolution	1.6 µA	
Fault signal	current output unchanged 20.5 mA, 22 mA or < 3.6 mA (selectable)	
Current limitation	22 mA	
Load	see load diagram	
Damping (63% of the input variable)	0... 999 s, adjustable	
Standards and approvals		
Protection	IP66 / IP67 with mounted and tightened cable gland M20 x 1.5	
Overvoltage category	III	
Protection class	II	
Standard		
EMV	EN61326	EN61326
Security	EN61010-1	EN61010-1
NAMUR	NE 21; NE 43	NE 21; NE 43
Approvals	ATEX[1]: EN60079-0; EN60079-11; EN60079-26	ATEX[1] : EN60079-0; EN60079-11; EN60079-26 FDA

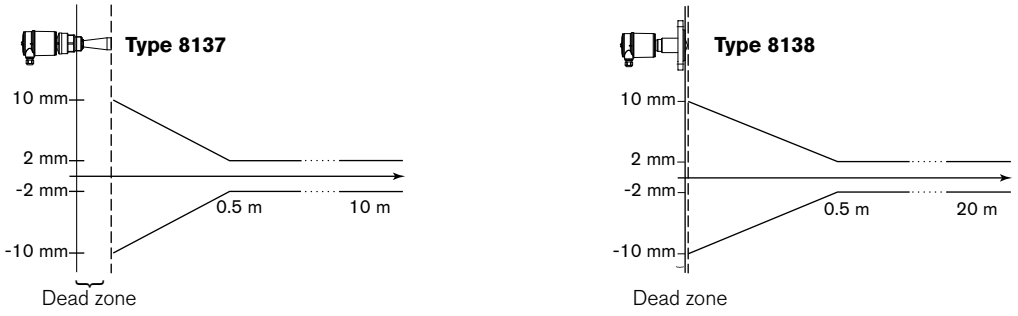
Type	8137	8138
Specifications Ex		
Ex - Protection	Categories 1/2G or 2G	
Ex - Certification	EEx ia IIC T6	
Conformity specifications[1]		
Operating voltage Ui	30 V	
Short circuit rating Ii	131 mA	
Power limitation Pi	983 mW	
Ambient temperature	-40 to +55 °C (depending on the category)	
Internal capacity Ci	negligible	
Internal inductivity Li	negligible	

[1] homologation certificate PTB 08 ATEX 2002X

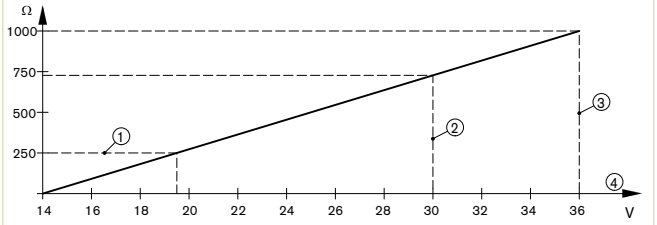
Option

- Other hygienic fittings

Accuracy diagram



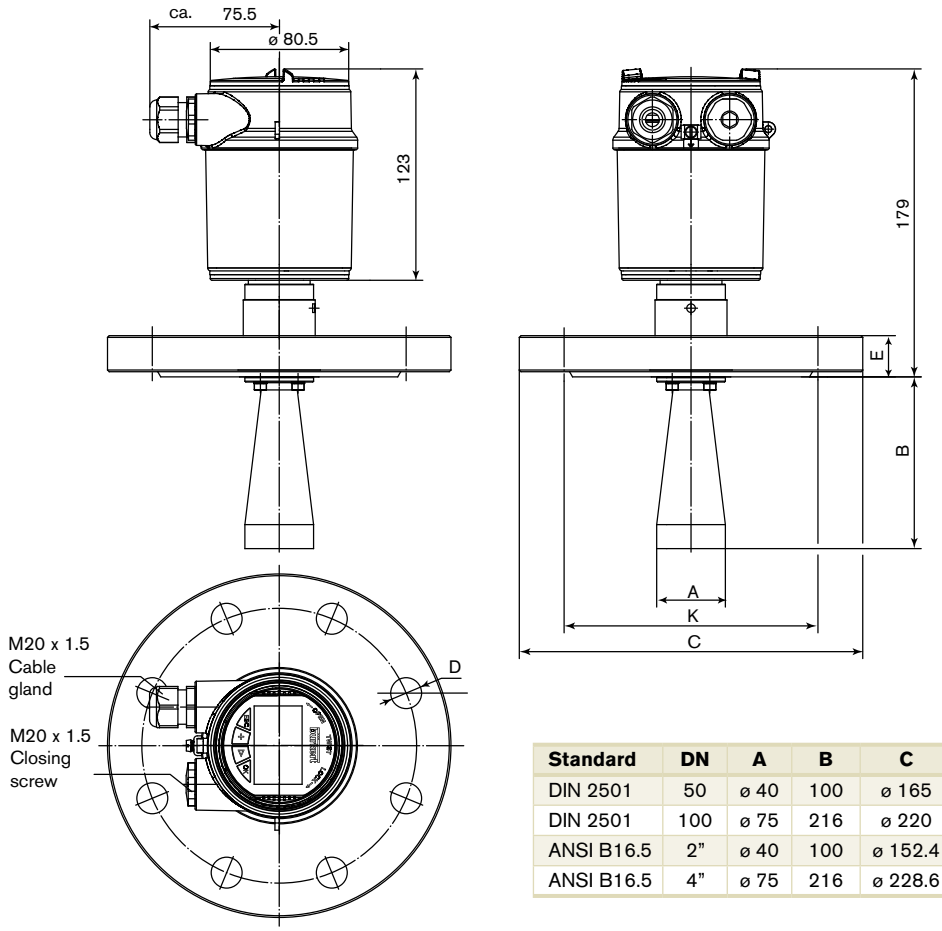
Load diagram



1 HART load
2 Voltage limit Ex ia instrument
3 Voltage limit non-Ex instrument
4 Operating voltage

Dimensions [mm]

Flange horn antenna version



Standard	DN	A	B	C	E	D	K
DIN 2501	50	ø 40	100	ø 165	20	4 x ø18	ø 125
DIN 2501	100	ø 75	216	ø 220	20	8 x ø18	ø 180
ANSI B16.5	2”	ø 40	100	ø 152.4	19.1	4 x ø19.1	ø 120.7
ANSI B16.5	4”	ø 75	216	ø 228.6	23.9	8 x ø19.1	ø 190.5

Ordering Chart

Area of application	Process connection	Electrical connection	Item no.
8137			
Without Ex	G 1 1/2" ISO 228	M20 cable gland	560 157
	Flange DIN 2301 DN 50	M20 cable gland	560 161
Ex	G 1 1/2" ISO 228	M20 cable gland	560 158
	Flange DIN 2301 DN 50	M20 cable gland	560 162

Area of application	Process connection	Electrical connection	Item no.
8138			
Without Ex	Clamp 2"	M20 cable gland	560 169
Ex	Clamp 2"	M20 cable gland	560 170

Note: Display not included, must be ordered separately (see accessories)

Accessories

Description	Item no.
Set with 2 M20 x 1.5 / NPT½ "-Reductions + 2 Neoprene gaskets for cable gland M20 x 1.5 + 2 sealing plugs	551 782
HART-USB Modem	560 177
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a sealing ring	561 006

Ultrasonic Level Transmitter for General Application

G thread process connection

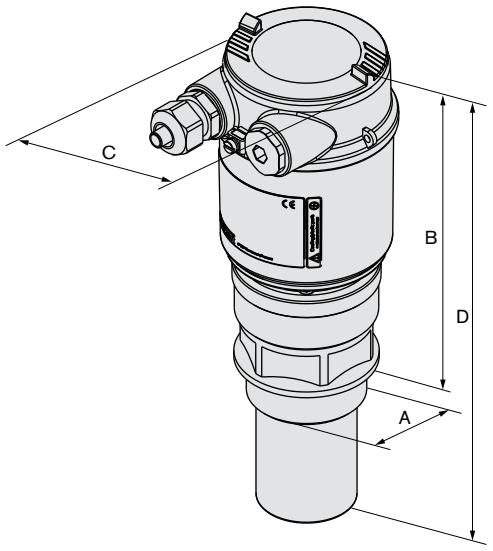
- Two-wire version
- Reliable non-contact measurement
- HART configuration

Ultrasonic level transmitters for non-contact measurement of process liquids and solids. Standard HART and 4-20mA HART compatible output.

Technical Data

Housing / Cover	PBT, Stainless steel 316L / PC
Seal ring / Ground terminal	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)
Seal	EPDM
Transducer	PVDF
Display	LCD in full dot matrix*
Voltage supply	2-wire, 14 to 36 V DC (10-30 V DC for Ex)
Current consumption max.	22 mA
Electrical connections	Cable glands M20 x 1.5
Outputs	4-20 mA/HART
Output load max.	See diagram
Dead zone	0.4 m
Measuring range:	8176: up to 5 m 8177: up to 8 m
Beam angle	11°
Accuracy	< 0.2% or ± 4 mm
Process temperature	-40 °C to +80 °C
Vessel pressure	-0.2 to 2 bar (-2.9 to 29.02 PSI) (-20 to 200 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5-100 Hz
Temperature coefficient	0.06%/10K (Average temperature coefficient of the zero signal - temperature error)
Resolution	max. 1 mm
Frequency	55 kHZ
Interval	> 2 s (dependent on the parameter adjustment)
Beam angle at 3 dB	11°
Adjustment time[1)]	> 3 s (dependent on the parameter adjustment)
Ingress protection	IP66/IP67, with M20 x 1.5 gland mounted and tightened
Electrical data	
Operating voltage	14 - 36 V DC or 14 - 30 V DC (Ex ia instrument)
Permissible residual ripple	< 100 Hz: Uss < 1 V 100 Hz... 10 kHz: Uss < 10 mV
Output signal	4... 20 mA/HART
Resolution	1.6 µA
Fault signal	current output unchanged; 20.5 mA; 22 mA < 3.6 mA (adjustable)
Current limitation	22 mA
Load	see load diagram
Damping (63% of the input variable)	0... 999 s, adjustable

Envelope Dimensions [mm] (see datasheet for details)



A	B	C	D
NPT 2	123	80.5	274
G 2"	123	80.5	274

Option

- Process connection clamp 2", 3", 3 1/2", 4"

* Must be ordered separately

[1)] Time to output the correct level (with max. 10% deviation) after a sudden level change.

Technical Data (continued)

Environment	
Ambient temperature	
with display, adjustment elements	-20 to +70°C (-4 to 158°F) (operation and storage)
Relative humidity	Max. 75% (operation), max. 85% (storage); without condensation
Standards and approvals	
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standard	
EMC	EN61326
Security	EN61010-1
NAMUR	NE 21; NE 43
Approvals	ATEX[2)]: EN50014; EN50020; EN50284

Specifications Ex	
⟨Ex⟩ - Protection	Categories 1/2G or 2G
⟨Ex⟩ - Certification	EEx ia IIC T6
Conformity specifications[2)]	
Operating voltage Ui	30 V
Short circuit rating Ii	131 mA
Power limitation Pi	983 mW
Ambient temperature	-20 to +41°C (-4 to 105.8°F) (dependent on categories)
Internal capacity Ci	negligible
Internal inductivity Li	negligible

[2)] Homologation certificate PTB 07 ATEX 2003X

Ordering Chart (versions with display)

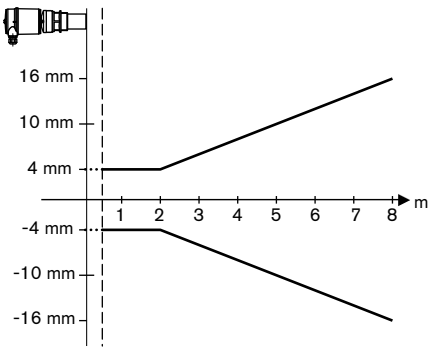
Area of application	Process connection [inch]	Range (liquids)	Range (solids)	Electrical connection	Item no.
8177					
Without Ex	G 2" ISO 228	0.4 - 8 m	0.4 - 3.5 m	M20 cable gland	558 224
Ex	G 2" ISO 228	0.4 - 8 m	0.4 - 3.5 m	M20 cable gland	558 226

Note: Display not included, must be ordered separately (see accessories)

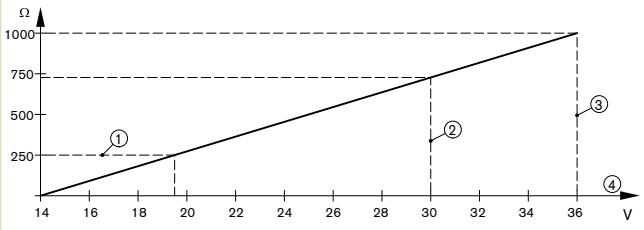
Accessories for Type 8177

Description	Item no.
Set with 2 reductions M20 x 1.5/NPT½" + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551 782
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a seal ring	561 006

Accuracy diagram



Load diagram



1 HART load
2 Voltage limit Ex ia instrument
3 Voltage limit non-Ex instrument
4 Operating voltage

pH Transmitter

8202 ELEMENT

- Accepts all standard pH probes
- Removable programming puck
- Data upload/download via puck
- With temperature compensation
- Diagnostic function

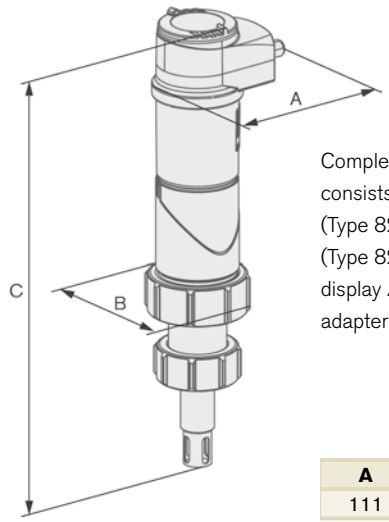
Please see fittings

pH transmitter with programmable outputs. pH and temperature output via single or dual analog 4-20 mA. Two transistor outputs are also included. Transmitters are engineered for a wide scope of measuring ranges and can be delivered in 2-wire or 3-wire configurations. Intelligent, integrated, beautiful design fits perfectly with an assortment of easily configured fittings.

Technical Data

pH measurement	
Measuring range	-2 to 16 pH or -580 to +580 mV
Resolution	0.001 pH or 0.1 mV
Accuracy	±0.02 pH or 0.5 mV
Minimal pH scale	0.5 pH or 30 mV (i.e 6.7 to 7.2 pH or -20 to +10 mV corresponding to 4-20 mA)
Temperature compensation	Automatic via integrated temperature sensor Pt. 1000
Temperature performance (via integrated Pt1000)	Measuring range -40 °C to +130 °C (-40 to 266 °F) Resolution 0.1 °C (0.18 °F) Accuracy ± 1 °C (1.8 °F)
Minimal temperature scale	10 °C (18 °F) (i.e 10 °C to 20 °C (50 to 68 °F) corresponding to 4-20 mA)
Available fitting materials	Stainless, PP, PVC
Housing material	Stainless steel, PPS, PC
Insertion finger	PVDF
Gasket seal	EPDM
Max. fluid temperature with PVC nut connection	-20 °C to +130 °C (depending on fitting & pH probe) 0 °C to 50 °C
Max. fluid pressure	0-16 bar
Ambient temperature	-10 °C to +60 °C
Relative humidity	≤ 85%, without condensation
Storage temperature	-10 °C to +60 °C (without probe)
Ingress protection	IP65, IP67
Voltage supply	14-36 V DC for 2-wire models 12-36 V DC for 3-wire models
Electrical protection	Reversed polarity of DC and peak protected
Current consumption max.	1 A max. (with transistor load)
Electrical connections	1 x 5-pin M12 male (2-wire) 1 x 5-pin M12 male + 1 x 5-pin M12 female (3-wire)

Envelope Dimensions [mm] (see datasheet for details)



Complete pH transmitter consists of a pH Transmitter (Type 8202) a pH probe (Type 8203) a detachable display / control unit and an adapter (Type S022).

A	B	C
111	75	338

Technical Data (continued)

Outputs	4-20 mA configurable temperature or pH 2 Transistors, configurable, open collector, 700 mA max., 0.5 A max. per transistor if the 2 transistor output are wired
Output load	1100 Ω at 36 V 610 Ω at 24 V 180 Ω at 14 V
Electrical data	
Power supply	
3 outputs transmitter (2-wire)	14-36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12-36 V DC, filtered and regulated
Current consump. with sensor	≤ 1 A (with transistor loads)
3 outputs transmitter (2-wire)	≤ 25 mA (at 14 V DC without transistor loads, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistor loads, without current loop)
Reversed polarity of DC	Protected
Voltage peak	Protected

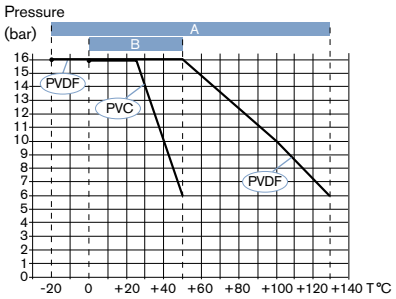
Options

- Blind version (Neutrino)
- ORP: see datasheet 8202

Technical Data (continued)

Short circuit	Protected for transistor outputs
Output	
Transistor	configurable as sourcing or sinking (respectively both as PNP or NPN), open collector max. 700 mA, 0.5 A max. per transistor if the 2 transistor outputs are wired output NPN: 0.2-36 VDC output PNP: V+ power supply
Current	4-20 mA programmable as sourcing or sinking,
3 outputs transmitter (2-wire)	max. loop impedance: 1100 W at 36 V DC; 610 W at 24 V DC; 180 W at 14 V DC
4 outputs transmitter (3-wire)	configurable in the same mode as transistor: sourcing or sinking, max. loop impedance: 1100 W at 36 V DC; 610 W at 24 V DC; 100 W at 12 V DC
Response time (10% - 90%)	150 ms (standard)
General data	
Compatibility	Any pipe which are fitted out with Bürkert adaptor S022 (see separate data sheet)
Materials	See exploded view, opposite
Housing/cover/seals	Stainless steel 1.4561, PPS / PC / EPDM
Screws/Display/navigation key	Stainless steel / PC / PBT
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector/Nut	Brass nickel plated / PVC or PVDF
Wetted part materials	
Probe holder	PVDF, Stainless steel 1.4571 (316Ti)
Probe	See probe specific technical data
Probe	120 mm Bürkert pH or ORP probe Type 8203 or any combined 120 mm pH or ORP probe, without temperature sensor, with PG13.5 head, S7/S8 connector
Temperature sensor	Pt1000 integrated within the holder
Display (accessories)	Grey dot matrix 128x64 with backlighting
Electrical connections	
3 outputs transmitter (2-wire)	1x 5-pin M12 male fixed connector,
4 outputs transmitter (3-wire)	1x 5-pin M12 male and 1x 5-pin M12 female fixed connectors
Connection cable	Shielded cable
Standards, directives and approvals	
Protection class	IP65 and IP67 with M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	
EMC	EN 61000-6-2, EN 61000-6-3
Pressure	Complying with article 3 of §3 from 97/23/
Vibration / Shock	CE directive.* EN 60068-2-6 / EN 60068-2-27
Approvals	
UL-Recognized for US and Canada c UL us	61010-1 + CAN/CSA-C22 No.61010-1

Pressure / temperature chart



Application range of a 8202:

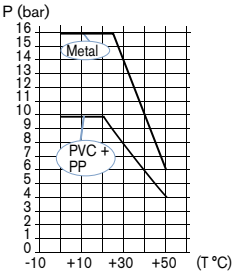
A : with PVDF nut

B : with PVC nut

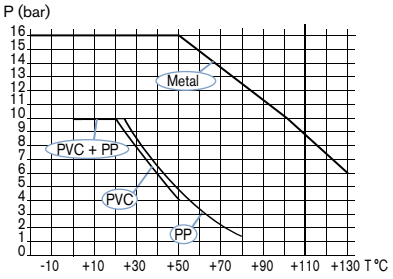
The measures have been made at an ambient temperature of 60 °C, without probe.

Application range of a 8202 (without probe)

- **with PVC nut** with S022 adaptor



- **with PVDF nut** with S022 adaptor



Ordering Chart

Transmitter				
Wiring	**Outputs**	**Nut**	**M12**	**Item no.**
2-wire	2 x transistors + 1 x 4 - 20 mA	PVC	5-pin male	559 630
		PVDF	5-pin male	559 632
3-wire	2 x transistors + 2 x 4 - 20 mA	PVC	5-pin male + female	559 631
		PVDF	5-pin male + female	559 633

Probe Type 8203 (additional versions available)	**Item no.**
pH probe 0...130 °C, 0 - 16 bar, pH 0 - 14 - UNITRODE PLUS pH 120 mm	560 376
pH probe 0...80 °C, 0 - 6 bar, pH 0 - 14 - FLATRODE pH 120 mm	561 025

Accessories

Description	**Item no.**
Display/programming module	559 168
Electrical connector, 5-pin M12 male, plug only	560 946
Electrical connector, 5-pin M12 male, 2 m prewired	559 177
Electrical connector, 5-pin M12 female, plug only	917 116
Electrical connector, 5-pin M12 female, 2 m prewired	438 680

Note

For a complete transmitter the following items must be ordered:

– Transmitter, Type 8202 ELEMENT

– pH or ORP probe, Type 8203

– Display/programmer module

– M12 cable socket, cable connector (only cable socket for a 4-20 mA current output, cable and cable connector for two 4-20mA current outputs)

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Life is complicated enough. So make it simpler—with the new solutions for process automation from Bürkert—designed with the needs of the pharmaceutical industry in mind. Featuring a hygienic design, easy cleaning and simple operation, they can also be sterilised and validated. A complex automation task can therefore become simplicity itself in a matter of seconds. Perfect for high process yields and your peace of mind.

ELEMENT
process valves:
A highlight in our system.
They simply keep everything under control.-

We make ideas flow.
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pH or ORP Transmitter

- Analog 4-20 mA output
- Universal process connection
- Compatible with 120 mm pH/ ORP probes Type 8203
- Temperature compensated pH measurement

Please see fittings

The Bürkert ELEMENT neutrino transmitter, Type 8202, is a compact device designed for the measurement of:

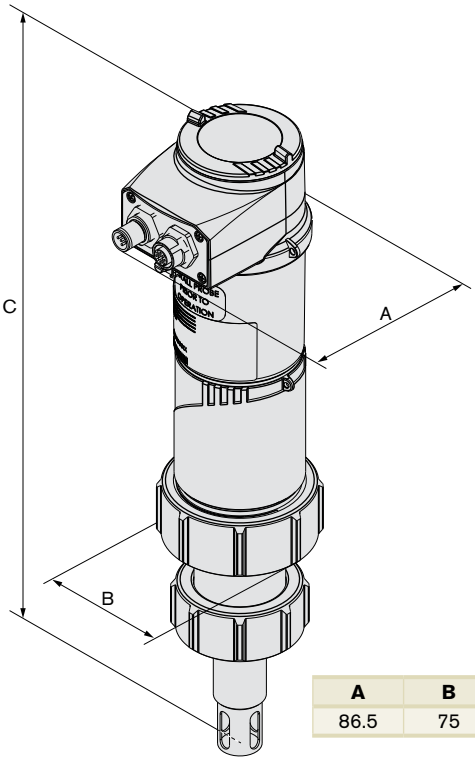
- the pH in clean liquids or liquids containing solids, sulphides or proteins
- or the oxidation-reduction potential in clean liquids or liquids containing solids, sulphides or proteins which may present low conductivity.

Technical Data

Pipe + Transmitter	
Pipe diameter	DN25-110 mm (DN<25 mm with reduction)
pH measurement	
Measuring range	0-14 pH
Accuracy	±0.05 pH
ORP measurement	
Measuring range	-2000 to +2000 mV
Accuracy	±3 mV
Temp. measurement	
Measuring range	-40 °C to +130 °C
Accuracy	±1 °C
Temp. compensation	automatic (integrated Pt1000) - reference temperature 25 °C
Ambient temperature	-10 °C to +60 °C (Operation and storage without probe)
Medium temp.*	
With PVC nut connection	0 up to +50 °C restricted by the used probe
With PVDF nut connection (on request)	-20 °C up to +130 °C restricted by the used adaptor or probe restriction with adaptor S022 in: - PVC: 0 °C up to +50 °C - PP: 0 °C up to +80 °C - Metal: -20 °C up to +130 °C
Fluid pressure max	PN16
4-20 mA output accuracy	±1%
Environment	
Relative humidity	≤ 85%, without condensation

* If the specific temperature limits for the probe used and the temperature limits given in the above technical data chart are different, please use the more restrictive range.

Envelope Dimensions [mm] (see datasheet for details)



A	B	C
86.5	75	276.5

Technical Data (continued)

Electrical data	
Power supply	12-36 V DC, filtered and regulated
Current consumption with sensor	≤ 25 mA
Reversed polarity of DC	Protected
Voltage peak	Protected
Output	
Current	4-20 mA max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC;
Response time (10%-90%)	5 s. (standard)