Flow Sensor
For Continuous Flow Measurement

Type 8030
Brass-INLINE

1/2˝ - 2˝; 240 PSI

Advantages / Benefits

- **Wireless easy mounting and dismounting of sensor head by a “Turn & Lock” technique**
- **3-wire Hall version to interface directly with PLC´s (both NPN and PNP)**
- **Easy to connect: Directly powered from the 8025 panel or 8025 wall**
- **Cost-effective solution for 1/2˝ - 2˝ in solid matter-free liquids**
- **Fittings available for all standard hydraulic interfaces**
- **Can be upgraded to a low cost transmitter providing calibrated pulse output or 4-20 mA**
- **CE Approval**

Design

The inline rotor flow sensor for continuous flow measurement is specially designed for use in neutral, solid-free liquids.

The sensor is made of a compact fitting and an electronic module quickly and easily connected by a bayonet.

The Burkert designed brass fitting system (all international threaded port connections) ensures simple installation of the sensors into all pipes from 1/2˝ to 2˝.

The sensor produces a frequency signal proportional to the flow which can easily be transmitted and processed.

- 4-20 mA output signal with transmitter module
- Adjustable frequency output signal with pulse divider module
- Direct connection to batch controller Type 8600 mounted on valve
- Connection to separate versions of flow transmitter Type 8025:
  - Panel version
  - Wall-mount version

Applications

Flow Measurement & Dosing Control

Industrial water

Cooling water monitoring

Auxiliary plants

Irrigation

Ideal for industrial cold and hot water applications

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Easy Fluid Control Solutions

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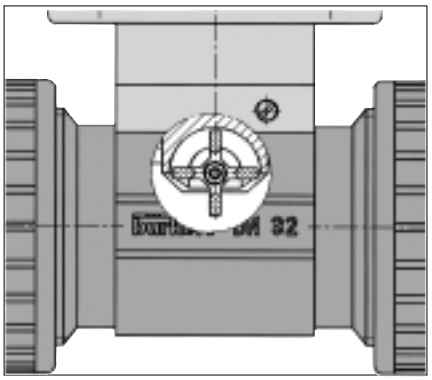
Design

The flow sensor consists of a transducer (coil or Hall sensor) and an open-cell inline rotor directly connected to a compact fitting.

In a 2 or 3-wire system, the signal can be displayed or processed directly. The output signal is provided via a 4-pole cable plug according to DIN 43650.

Principle of Operation

When liquid flows through the pipe, the inline rotor is set in rotation, producing a measuring signal in the transducer. The induced voltage is AC. The frequency and amplitude are proportional to the flow.



The flow sensor 8030 with Hall sensor requires an external power supply of 12-30 VDC.

The flow sensor 8030 with coil requires no external power supply.

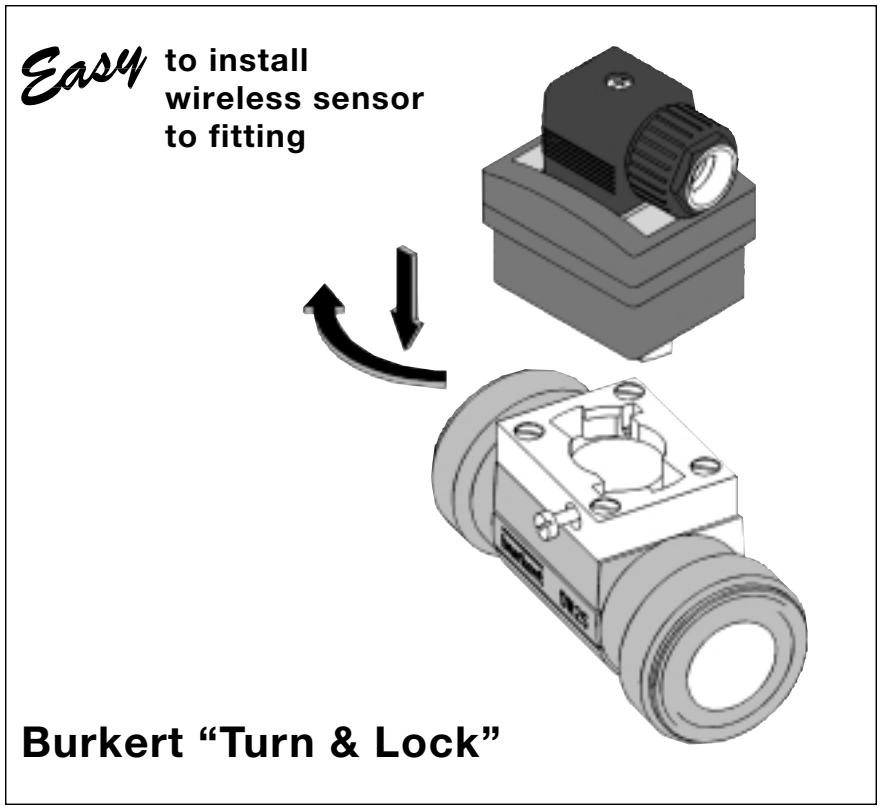
The flow sensor 8030 with 4-20 mA output requires an external power supply of 12-24 VDC.

The flow sensor 8030 with adjustable frequency output requires an external power supply of 12-30 VDC.

The sensor measures a flow rate from 0.3 ft/s (0.1 m/s).

Installation

The flow sensor is made of a compact fitting and an electronic module which can be quickly and easily connected by means of a “Turn & Lock”.



The recommended In- and Outflow straight pipe length should equal 10xD in and 3xD out.

According to the piping design, necessary distances can be longer or use a flow conditioner to obtain the best accuracy. For more information, please refer to EN ISO 5167-1.

The flow sensor can be installed in either horizontal or vertical pipes.

The suitable pipe size is selected using the diagram on the next page. Pressure and temperature ratings must be respected according to the selected fitting material (see next page).

The flow sensor is not designed for gas flow measurement.

Examples of Fitting Selection

The suitable pipe size is selected using the diagram below.

Example 1:
Specification of nominal flow: 50 gpm

Ideal flow velocity: 8 fps

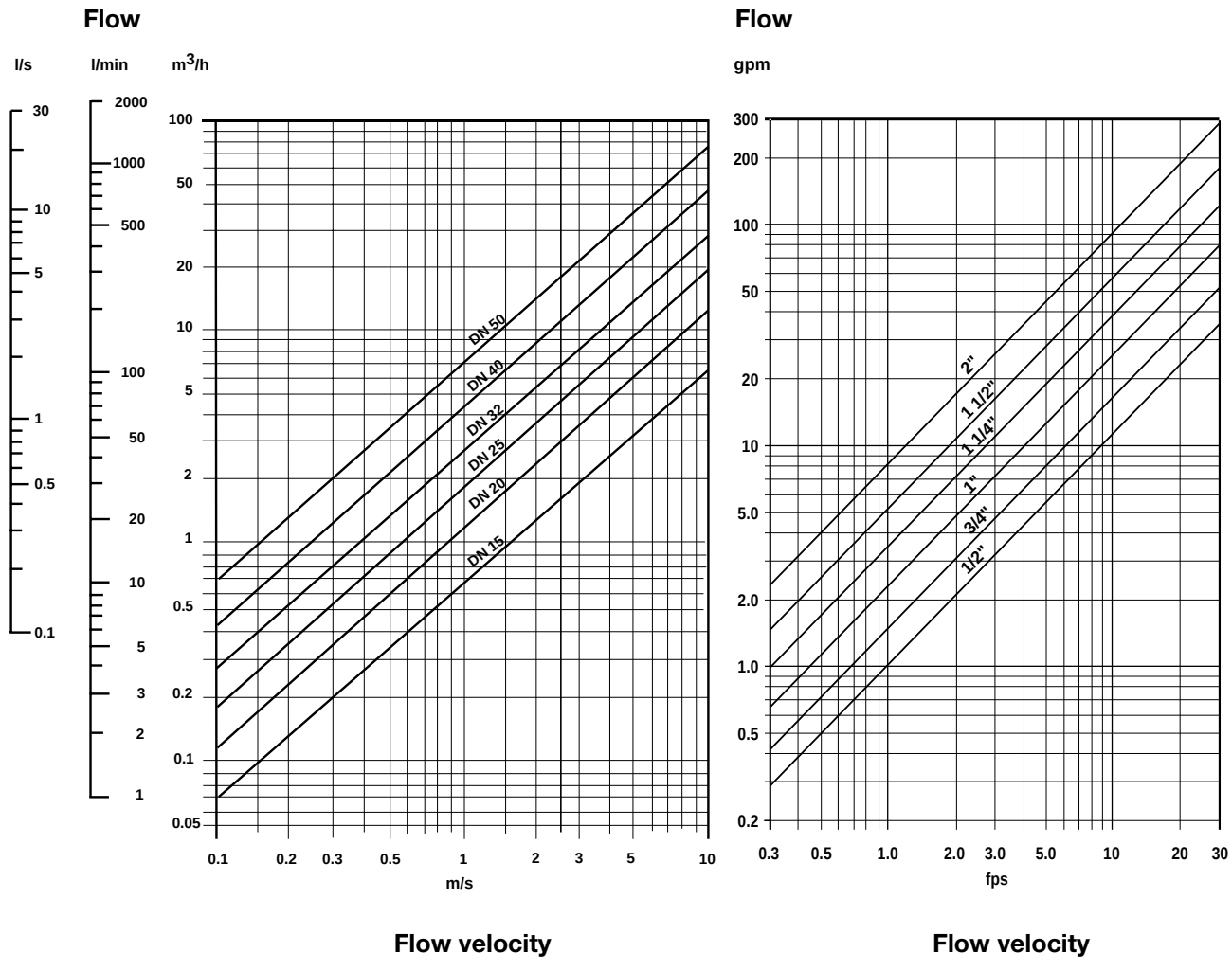
For these specifications, the diagram indicates a pipe size of 1-1/2″.

Example 2:
Specification of nominal flow: 10 m^3/h

Ideal flow velocity: 2-3 m/s

For these specifications, the diagram indicates a pipe size of DN 40.

Diagram Flow / Pipe Size / Velocity



Connection to Other Burkert Devices

8030 with Hall sensor

Type 8600

Link: cable

Type 8021

Link: quick connection via cable plug socket

8030 with Hall sensor “low power”

Type 8025 panel or wall-mount version

Link: cable

Type 8021

Link: quick connection via cable plug socket

Type 8023

Link: quick connection via cable plug socket

8030 with coil

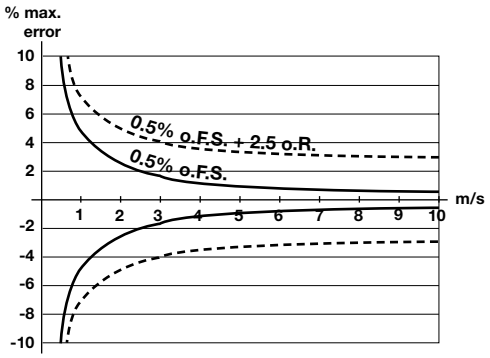
Type 8025 wall-mount with battery power supply

Link: cable

Technical Data

General Data

Pipe diameter	From 1/2″ to 2″ (DN 15 to DN 50)
Measuring range	1.0 fps to 32.8 fps (0.3 m/s to 10 m/s) As from 0.9 gpm (1/2″ pipe, 1.0 fps flow velocity) As from 3 l/min (DN15 pipe, 0.3 m/s flow velocity)
Measuring error	1. With In-line calibration (Teach-In): ≤ ±0.5% o.F.S. (at 32.8 f/s)(10 m/s)* 2. With standard mean K-factor: ≤ ± (0.5% o.F.S. +2.5% o.R.)*
Linearity	≤ ±0.5% o.F.S. (at 32.8 f/s)(10 m/s)*
Repeatability	0.4% o.R.*
Fluid temperature maximum	32°F to 212°F (0°C to 100°C)
Ambient temperature	32°F to 140°F (0°C to 60°C)
Storage temperature	32°F to 140°F (0°C to 60°C)
Pressure class	230 PSI (PN 16)
Enclosure	NEMA 4
Fitting	Brass
Sensor holder	Brass
Inline rotor	PVDF
Axis and bearing	Ceramic
O-rings	FPM (Viton) standard
Housing	PC
Front plate foil	Polyester



Specific Data for 8030 with Coil
Can only be connected to flow transmitter Type 8025 with battery power supply in wall-mount version

Specific Data for 8030 with Hall Sensor

Supply voltage	12-30 VDC
Output signal	Transistor PNP and NPN open collector maximum 100 mA Frequency: 0-200 Hz

Specific Data for 8030 with Hall Sensor “Low Power”
Can only be connected to separate versions of flow transmitter Type 8025 and to 4-20 mA or calibrated frequency output modules

Specific Data for 8030 with 4-20 mA Output

Associated flow sensor	Hall sensor “low power”
Supply voltage	12-24 VDC
Output signal	4-20 mA
Load	Max. 500Ω at 12 V Max. 1000Ω at 24 V
Accuracy	≤ 2%
Material of additional housing	PA

Specific Data for 8030 with Calibrated Frequency Output

Associated flow sensor	Hall sensors
Supply voltage	12-30 VDC
Output signal	Transistor PNP and NPN open collector maximum 100 mA
Accuracy	0.1%
Material of additional housing	PA

(*) In reference conditions (water, 68°F, ideal installation)

Operation and Display

Type 8030 with 4-20 mA output module

The operation is specified according to two levels:

- **Indication in operating mode**
  - Flow (digits and bargraph)
- **Parameter definition**
  - K-factor
  - Time unit
  - 4-20 mA measuring range

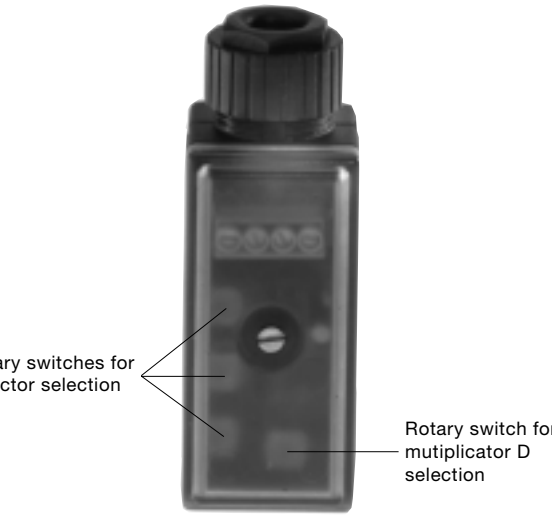
The device works without the control unit. The control unit only enables performance by parameter definition.

4-20 mA module with control unit

Type 8030 with calibrated frequency output module

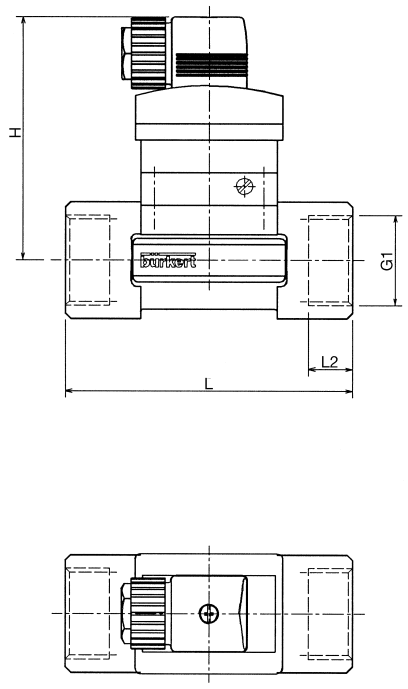
The operation is specified according to the following level:

- **Parameter definition**
  - K-factor
  - Multiplicator D



Dimensions [inch]

Internal threaded port connection



Dimensions NPT-Port Connection

Port Connection (Dimension G1)	Orifice	Variable Dimensions [inch]		
		L	L2	H
NPT 1/2	1/2	3.35	0.67	3.62
NPT 3/4	3/4	3.74	0.72	3.51
NPT 1	1	4.14	0.71	3.52
NPT 1-1/4	1-1/4	4.73	0.83	3.66
NPT 1-1/2	1-1/2	5.12	0.79	3.82
NPT 2	2	5.91	0.95	4.10

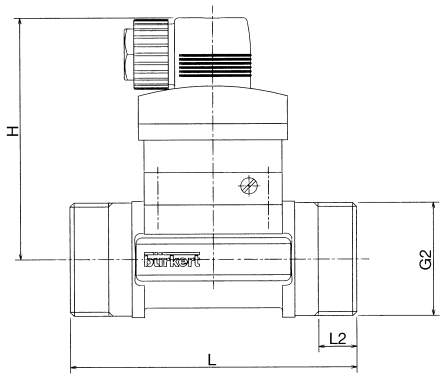
Dimensions G-Port Connection

Port Connection (Dimension G1)	Orifice	Variable Dimensions [inch]		
		L	L2	H
G 1/2	1/2	3.35	0.63	3.62
G 3/4	3/4	3.74	0.67	3.51
G 1	1	4.14	0.93	3.52
G 1-1/4	1-1/4	4.73	0.93	3.66
G 1-1/2	1-1/2	5.12	0.93	3.82
G 2	2	5.91	1.08	4.10

Dimensions Rc-Port Connection

Port Connection (Dimension G1)	Orifice	Variable Dimensions [inch]		
		L	L2	H
Rc 1/2	1/2	3.35	0.59	3.62
Rc 3/4	3/4	3.74	0.64	3.51
Rc 1	1	4.14	0.71	3.52
Rc 1-1/4	1-1/4	4.73	0.83	3.66
Rc 1-1/2	1-1/2	5.12	0.75	3.82
Rc 2	2	5.91	0.94	4.10

External threaded port connection



Dimensions [inch]

Port Connection (Dimension G2)	Orifice	Variable Dimensions [inch]		
		L	L2	H
G 3/4	15	3.31	0.45	3.62
G 1	20	3.70	0.53	3.51
G 1-1/4	25	4.09	0.55	3.52
G 1-1/2	32	4.69	0.71	3.66
M 55x2	40	5.08	0.75	3.82
M 64x2	50	5.87	0.78	4.10

Dimensions [mm]

Port Connection (Dimension G2)	DN	Variable Dimensions [mm]		
		L	L2	H
G 3/4	15	84	11.5	92
G 1	20	94	13.5	89
G 1-1/4	25	104	14	89.5
G 1-1/2	32	119	18	93
M 55x2	40	129	19	97
M 64x2	50	149	20	104

Ordering Chart

A complete Flow Sensor System Type 8030 consists of two or three basic units as follows.
-Fitting Type S030 which houses the inline rotor,
-Sensor Electronic Type SE30,
-Upgradable to a low-cost transmitter with calibrated pulse output or 4-20 mA output

This Flow Sensor can also be connected to a transmitter Type 8025 in panel- or wall-mount version (see data sheet of Type 8025 flow transmitter).

Selection example: A Flow Sensor System with 4-20 mA output for 1˝ steel pipe consists of:

-Fitting Type S030 (NPT-port connection internal thread)	423 988 R
-Sensor Electronic Type SE30 (Hall sensor “low power”)	423 914 E
-4-20 mA output module Type 8023	130 428 V
-Control unit for 4-20 mA output module Type 1077-3	130 446 X

Ordering Chart Fittings Type S030

Brass Body

	ITEM NO.					
Specifications	1/2˝ (DN 15)	3/4˝ (DN 20)	1˝ (DN 25)	1-1/4˝ (DN 32)	1-1/2˝ (DN40)	2˝ (DN 50)
G-port connection (internal thread)	423 980 M	423 981 A	423 982 B	423 983 C	423 984 D	423 985 E
JIS (ISO 7)-port connection (internal thread)	423 992 D	423 993 E	423 994 F	423 995 G	423 996 H	423 997 A
NPT-port connection (internal thread)	423 986 F	423 987 G	423 988 R	423 989 J	423 990 P	423 991 C
G-port connection (external thread)	423 998 K	423 999 L	424 000 T	424 001 Q	424 002 R	424 003 J

Ordering Chart Sensor Electronics Type SE30

Specifications	Power Supply	Cable Entry	ITEM NO.
Coil Sensor (Connectable to Type 8025 wall-mount version with batteries only)	None	DIN 43650 PG9	423 912 C
Hall Sensor	12-30 VDC	DIN 43650 PG9	423 913 D
Hall Sensor “low power” (Connectable to Types 8025, 8021, 8023 and SE34 only)	from 8025/8023	DIN 43650 PG9	423 914 E

Ordering Chart for Standard Output Signals

Specifications	Power Supply	Cable Entry	ITEM NO.
Calibrated pulse output module Type 8021	12-30 VDC	1x PG9	418 895 P
4–20 mA output module Type 8023	12-24 VDC	1x PG9	130 428 V
Control unit for 4-20 mA output module Type 1077-3	12-24 VDC	None	130 446 X

In case of special application requirements, please consult for advice.

We reserve the right to make technical changes without notice.
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