

1/2" - 2"; 150 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 and aggressive, 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 plastic fitting system (PVC, PP, PVDF) 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

Water treatment and process technology

Cooling water monitoring

Industrial waste water treatment

Auxiliary plants

Irrigation

Ideal system solutions for pure water and chemical aggressive liquids

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**burkert**  
Easy Fluid Control Solutions

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.

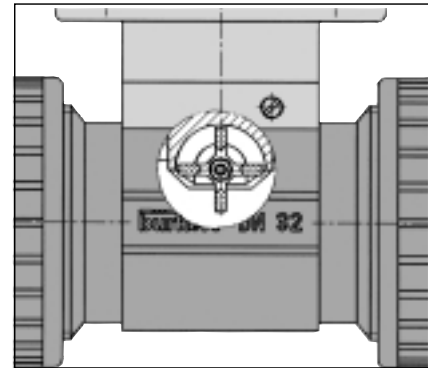
The flow sensor 8030 with Hall sensor requires an external power supply of 12-30 VDC.

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.

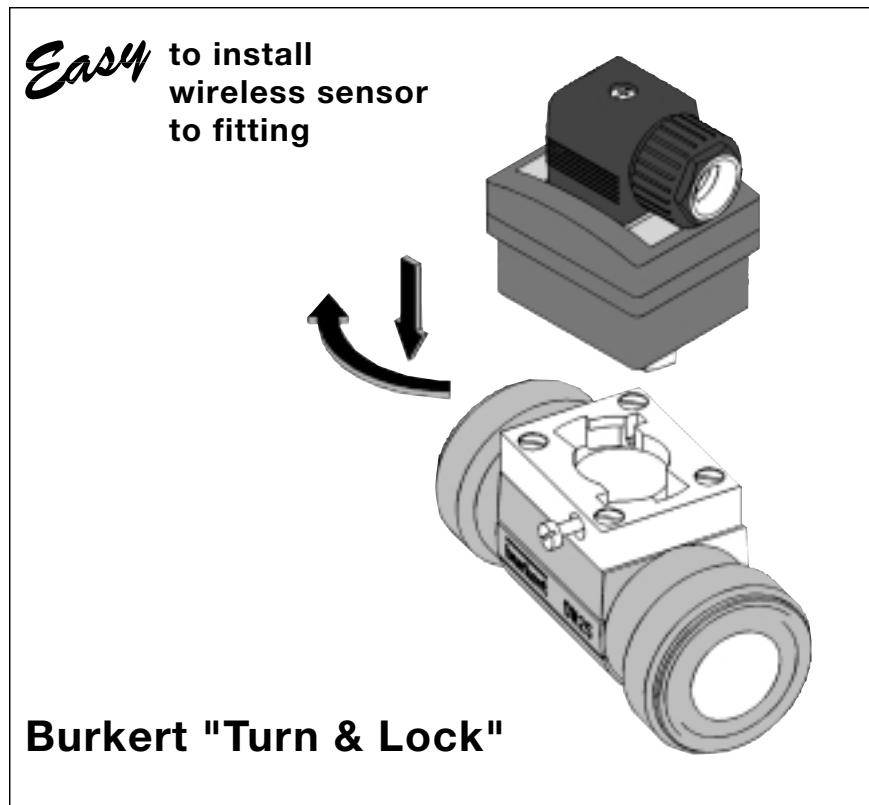
The flow sensor 8030 with adjustable frequency output requires an external power supply of 12-30 VDC.

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".

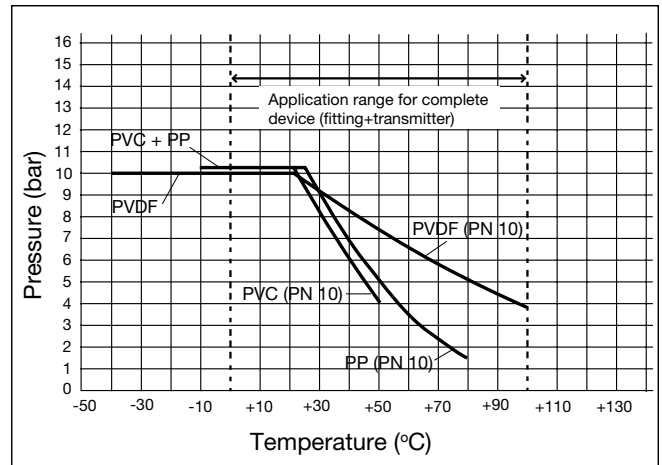
**Example 2:**

Specification of nominal flow: 10 m<sup>3</sup>/h

Ideal flow velocity: 2-3 m/s

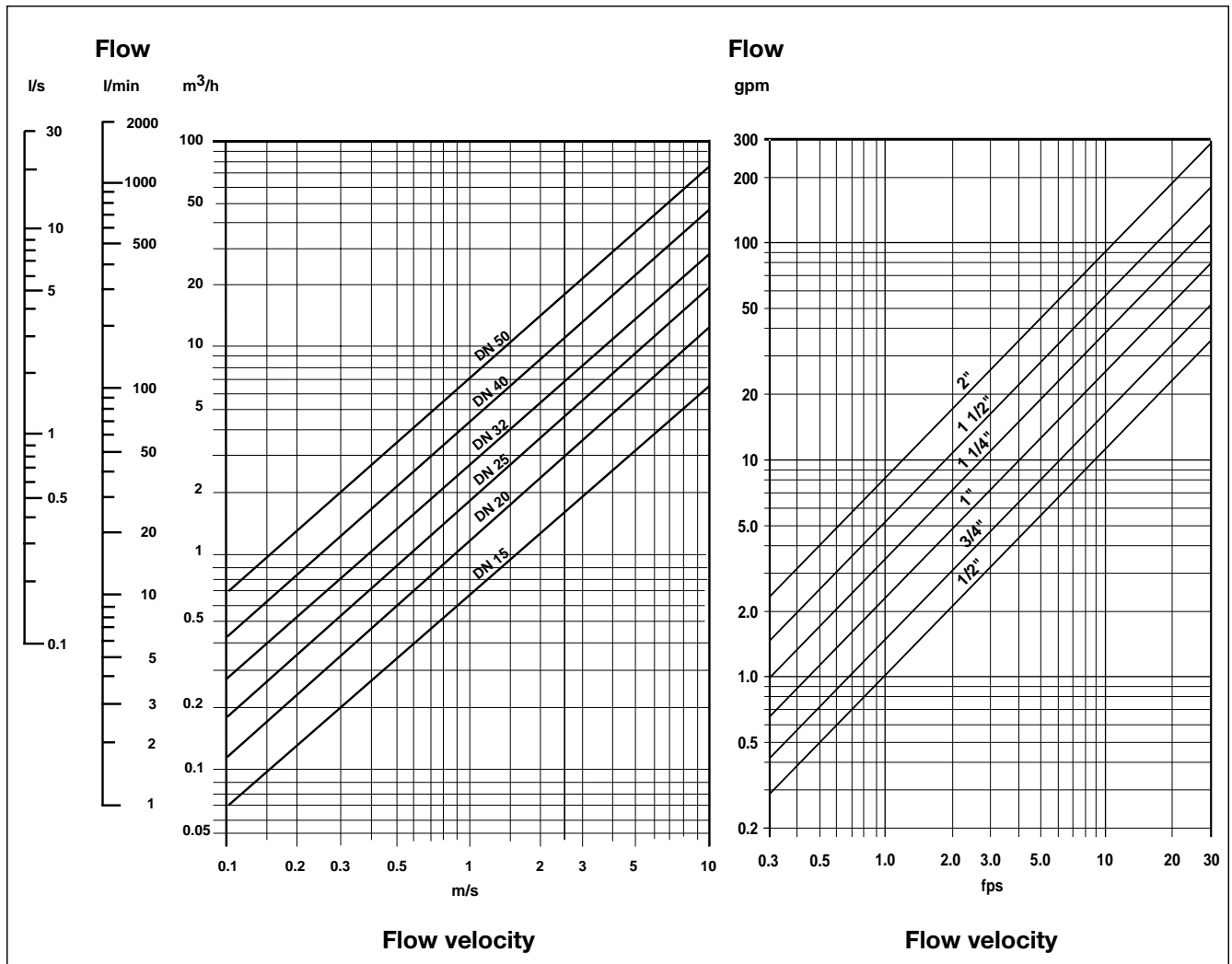
For these specifications, the diagram indicates a pipe size of DN 40.

**Pressure-Temperature Diagram**



Note: 1 bar = 14.5 PSI

**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**

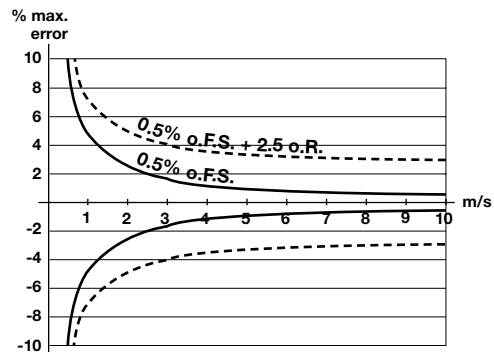
**Link:** cable



### 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): $\leq \pm 0.5\%$ o.F.S. (at 32.8 f/s)(10 m/s)* 2. With standard mean K-factor: $\leq \pm (0.5\%$ o.F.S. +2.5% o.R.)*
Linearity	$\leq \pm 0.5\%$ o.F.S. (at 32.8 f/s)(10 m/s)*
Repeatability	0.4% o.R.*
Fluid temperature maximum	PVC: 122°F (50°C); PP: 176°F (80°C); PVDF: 212°F (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 10)
Enclosure	NEMA 4
Fitting	PVC, PP, PVDF
Sensor holder	PVC, PP, PVDF
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	$\leq 2\%$
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.

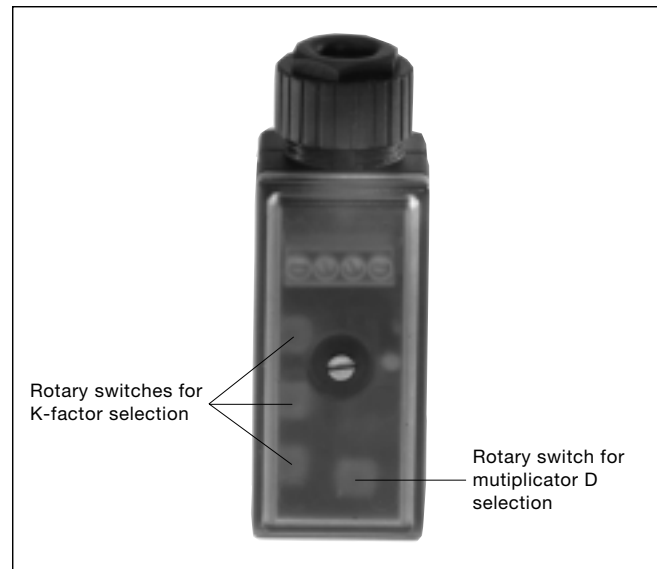
**4-20 mA module with control unit**



**Type 8030 with calibrated frequency output module**

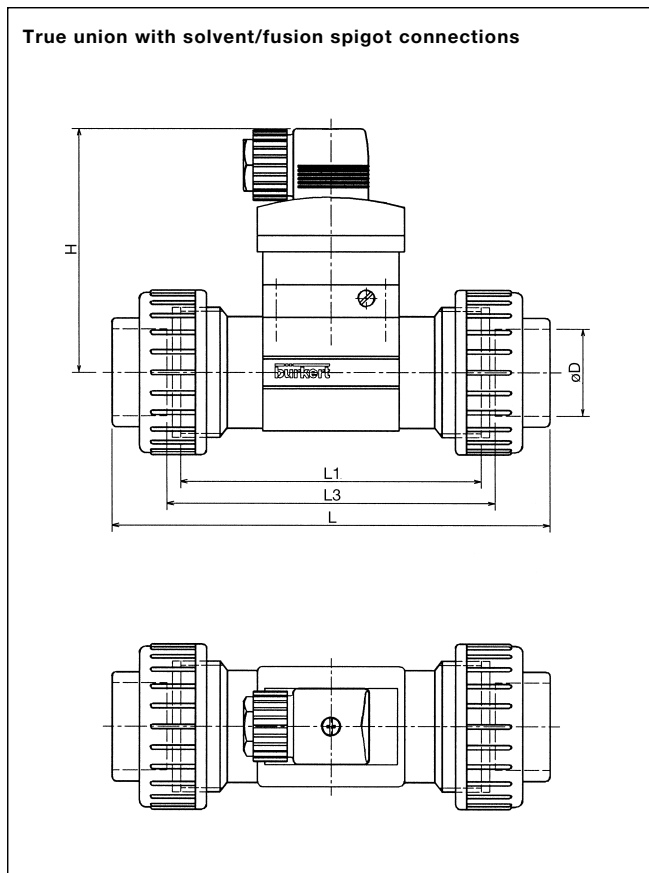
The operation is specified according to the following level:

- ▶ **Parameter definition**
  - K-factor
  - Multiplier D



**Dimensions [inch]**

**True union with solvent/fusion spigot connections**



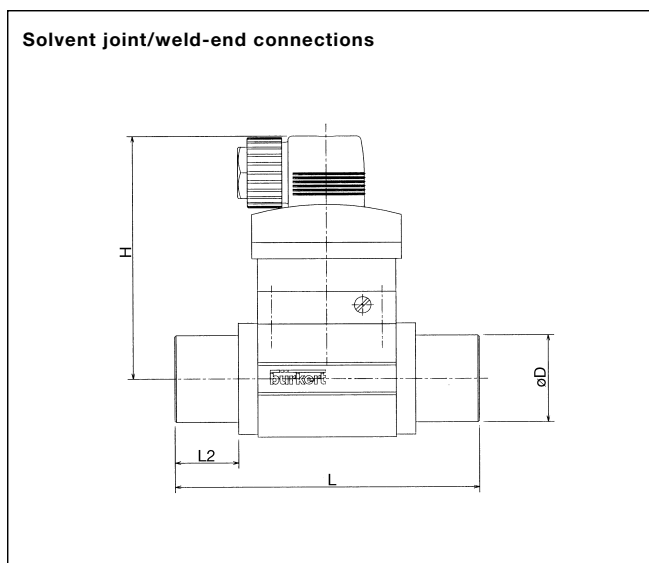
**Dimensions [inch]**

Port Connection	DN [inch (mm)]	Variable Dimensions [inch]				
		Ø D	L	L1	L3	H
True union connection with solvent/fusion spigot	1/2 (15)	.79	5.04	3.55	3.78	3.62
	3/4 (20)	.99	5.67	3.94	4.18	3.51
	1 (25)	1.26	6.30	4.33	4.57	3.52
	1-1/4 (32)	1.58	6.62	4.33	4.57	3.66
	1-1/2 (40)	1.97	7.41	4.73	5.00	3.82
2 (50)	2.48	8.35	5.12	5.36	4.10	

**Dimensions [mm]**

Port Connection	DN	Variable Dimensions [mm]				
		Ø D	L	L1	L3	H
True union connection with solvent/fusion spigot	15	20	128	90	96	92
	20	25	144	100	106	89
	25	32	160	110	116	89.5
	32	40	168	110	116	93
	40	50	188	120	127	97
50	63	212	130	136	104	

**Solvent joint/weld-end connections**



**Dimensions [inch]**

Port Connection	DN [inch (mm)]	Variable Dimensions [inch]					H
		øD	L		L2		
			PVC	PP PVDF	PVC	PP PVDF	
Solvent joint or weld-end connection	1/2 (15)	.79	3.54	3.35	.65	.55	3.62
	3/4 (20)	.99	3.94	3.62	.79	.63	3.51
	1 (25)	1.26	4.33	3.74	.91	.71	3.52
	1-1/4 (32)	1.58	4.33	3.94	1.08	.79	3.66
	1-1/2 (40)	1.97	4.72	4.17	1.18	.91	3.82
2 (50)	2.48	5.12	4.33	1.46	1.06	4.10	

**Dimensions [mm]**

Port Connection	DN	Variable Dimensions [mm]					H
		øD	L		L2		
			PVC	PP PVDF	PVC	PP PVDF	
Solvent joint or weld-end connection	15	20	90	85	16.5	14	92
	20	25	100	92	20	16	89
	25	32	110	95	23	18	89.5
	32	40	110	100	27.5	20	93
	40	50	120	106	30	23	97
50	63	130	110	37	27	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 8035 in panel- or wall-mount version (see datasheet of Type 8025 flow transmitter).

**Selection example:** A Flow Sensor System with 4-20 mA output for 1" PVC pipe consists of:

- Fitting Type S030 (True union with solvent spigot) 423 940 U
- Sensor Electronic Type SE30 (Hall sensor "low power") 423 952 L
- 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**

PVC Body Specifications	ITEM NO.					
	1/2" (DN 15)	3/4" (DN 20)	1" (DN 25)	1-1/4" (DN 32)	1-1/2" (DN40)	2" (DN 50)
True union connection with solvent spigot (Europe standard version)	423 938 N	423 939 P	423 940 U	423 941 R	423 942 J	423 943 K
True union connection with solvent spigot (North America standard version)(NPT)	423 950 W	423 951 K	423 952 L	423 953 M	423 954 N	423 955 P
Solvent joint connection	423 944 L	423 945 M	423 946 N	423 947 P	423 948 Y	423 949 Z

PP Body Specifications	ITEM NO.					
	1/2" (DN 15)	3/4" (DN 20)	1" (DN 25)	1-1/4" (DN 32)	1-1/2" (DN 40)	2" (DN 50)
True union connection with fusion spigot	423 956 Q	423 957 R	423 958 S	423 959 T	423 960 Y	423 961 M
Weld-end connection	423 962 N	423 963 P	423 964 Q	423 965 R	423 966 J	423 967 K

PVDF Body Specifications	ITEM NO.					
	1/2" (DN 15)	3/4" (DN 20)	1" (DN 25)	1-1/4" (DN 32)	1-1/2" (DN 40)	2" (DN 50)
True union connection with fusion spigot	423 968 U	423 969 V	423 970 S	423 971 P	423 972 Q	423 973 R
Weld-end connection	423 974 J	423 975 K	423 976 L	423 977 M	423 978 W	423 979 X

**Ordering Chart Sensor Electronics Type SE30**

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

**Ordering Chart for Standard Output Signals**

Specifications	ITEM NO.		
	Power Supply	Cable Entry	
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