burkert
FLUID CONTROL SYSTEMS

Electromagnetic Flowmeter, full bore - for Low-flow measurement

- Combination of sensor fitting S051 and electronics SE56
- Continuous measurement or Batch Control
- Clean in place(CIP)
- Low-flow measurements down to 3 l/h

Type 8051 can be combined with...

Type 6223
Solenoid control valve

Type 8801-YE
Element
On/Off system

Type 8802-DD
Classic
Continuous system

Type 8644
Valve islands

PLC

The complete full bore magmeter Type 8051, which consists of a magnetic sensor fitting Type S051 connected to an electronics Type SE56 (blind in compact version or with display in compact or remote version) is designed for applications with liquids with a minimum conductivity of 5 µS/cm.

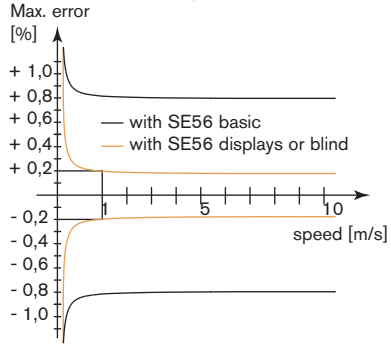
Combined with a valve as the actuating element, the complete flowmeter Type 8051 can control high-precision dosing operations.

General data - S051 sensor fitting	
Compatibility	SE56 electronics (see corresponding data sheet)
Materials	
Body	Stainless steel 304 (1.4301)
Wetted part (connection)	Stainless steel 316L (1.4404) or 304 (1.4301) for full lining
Electrode	Stainless steel 316L [Hastelloy C, Titanium, Tantalum, Platinum-rhodium on request]
Lining	PTFE
Seal	FKM, EPDM or FFKM
Electrical connection	2 cable glands PG9

Data complete flowmeter 8051 - (S051 sensor fitting + SE56 electronics)	
Pipe diameter	DN03 to DN20
Measuring range	0... 10 l/h to 0... 12500 l/h
Process connection	Thread ISO 228-1, NPT (DIN 11851, SMS 1145, Clamp ISO 2852 or BS 4825, Flanges DIN 2501, ANSI on request)
Medium temperature	see medium temperature chart on page 3 go to page
Medium pressure max.	PN16 *(232 PSI)* (PN40 *(580 PSI)*, on request)
Vacuum resistance	200 mbar *(2.9 PSI)* absolute at 100°C *(212°F)*
Accuracy [1] see diagram, opposite	± 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)
Minimum conductivity	5 µS/cm (or 20 µS/cm with demineralized water)

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

Accuracy diagram



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Environment	
Ambient temperature with	
SE56 standard	-20 to 60°C *(-4 to 140°F)* (operating and storage)
SE56 basic	-10 to 50°C *(14 to 122°F)* (operating) -20 to 50°C *(-4 to 122°F)* (storage)
SE56 blind	-20 to 40°C *(-4 to 104°F)* (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)
Standard	
EMC	EN 61326-1,
Emission / Immunity	EN 55011 (Group 1, Class B) / IEC 1000-4-2/3/4/5/6/11
Safety	EN 61010

Ordering information for complete flowmeter Type 8051

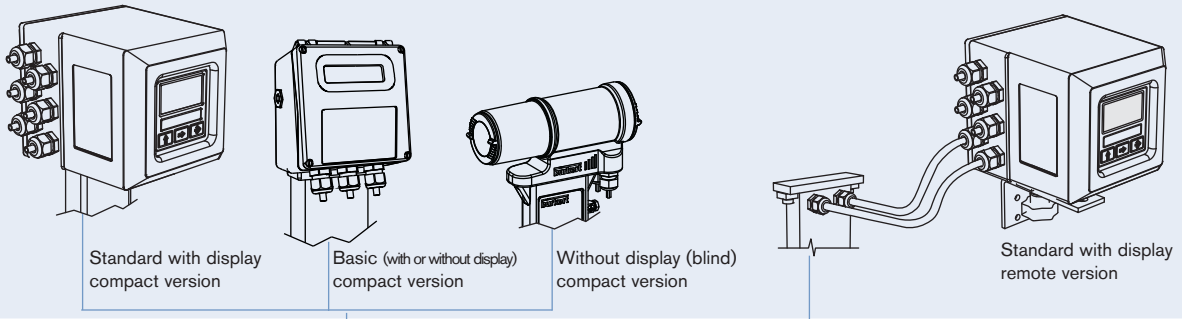
A complete flowmeter Type 8051 consists of a sensor fitting S051 and an electronics SE56.

The following information is necessary for the selection of a complete flowmeter:
- **item no.** of the sensor fitting **Type S051** (see Ordering Chart on page 5)
- **item no.** of the electronics **Type SE56** (see corresponding data sheet or Ordering chart on page 5)

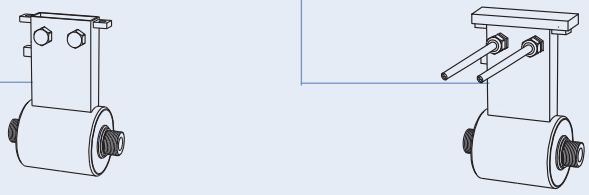
More info.
For more technical information about this product, click on this box... you will come to our website for this product where you can download the datasheet.

Examples for variations of complete flowmeter (electronics + sensor fitting)

Electronics Type SE56



Sensor fitting Type S051



Compact version
sensor fitting

Remote version
sensor fitting

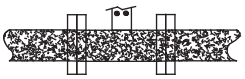
Design and operating principle

The sensor fitting Type S051 consists of a stainless steel pipe section internally lined with insulating material. Two electrodes mounted opposite to each other on the internal surface of the tube generate an electrical signal. The coils generating the magnetic field are placed outside the pipe.
The signal generated by the sensor fitting S051 must be amplified and processed by an electronics (SE56) which outputs an electrical signal proportional to the fluid flow velocity respectively to the flow rate.
Faraday's induction law is the basis for this magnetic flow measurement.

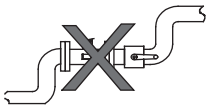
DTS 1000101292 EN Version: J Status: RL (released | freigegeben | validé) printed: 29.08.2013

Installation

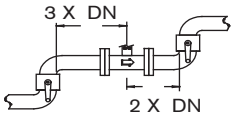
Avoid the functioning with the pipe partially filled.



During flowmeter operation the pipe must be completely full.

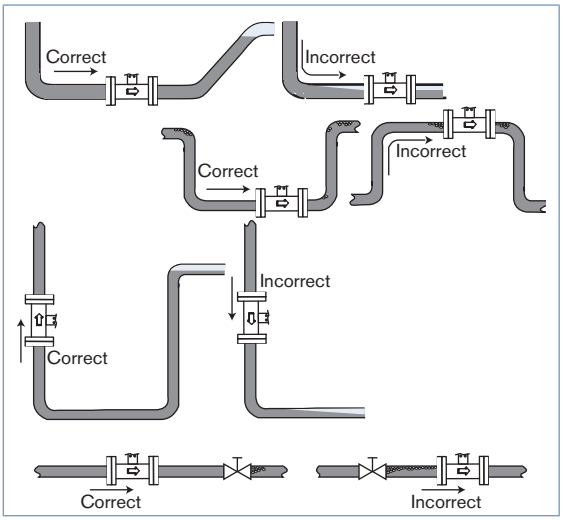


Avoid the installation near curves or hydraulic accessories.



Observe the upstream and downstream distances.

The sensor fitting can be installed into either horizontal or vertical pipes. Mount the sensor fitting in the below as correct indicated ways to obtain an accurate flow measurement.



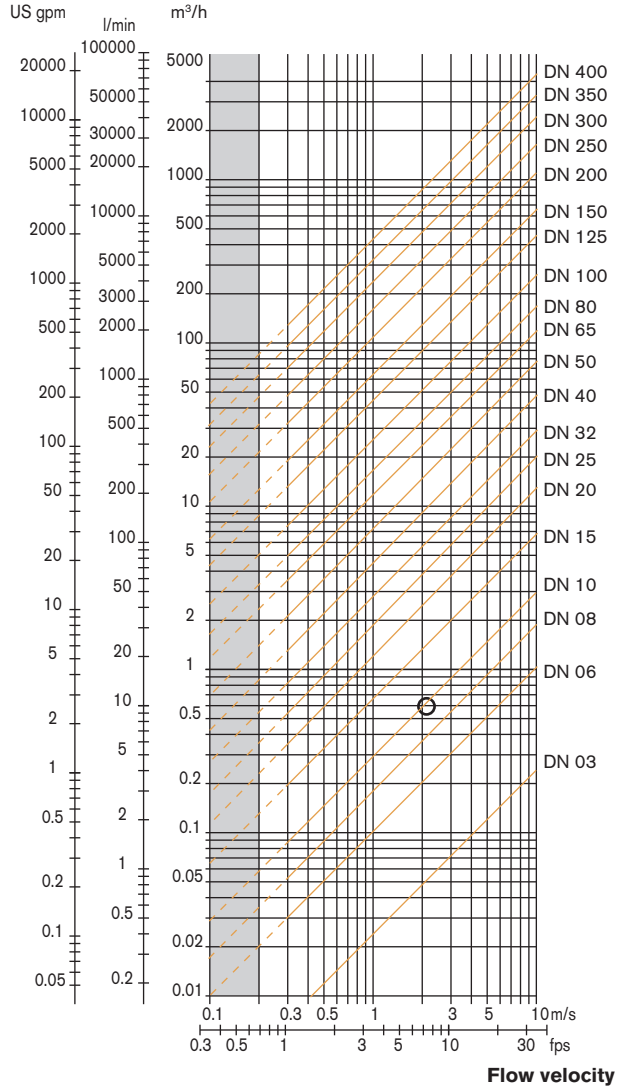
The suitable pipe size is selected using the diagram Flow/Velocity/DN (see diagram to the right).
The flow sensor fitting is not designed for gas flow measurement.

Flow/Velocity/DN diagram

Example:

- Flow: 10 l/min
- Ideal flow velocity: 2... 3 m/s
- For these specifications, the diagram indicates a pipe size of DN10

Flow rate

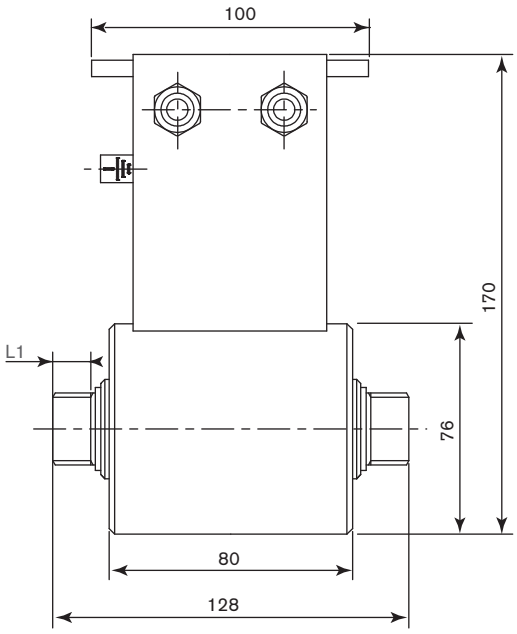


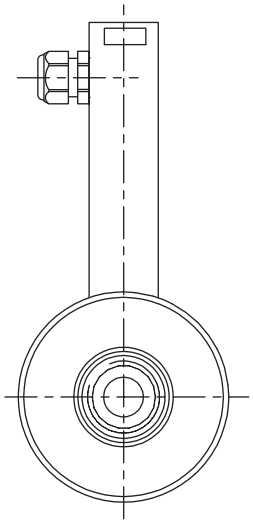
Medium temperature chart

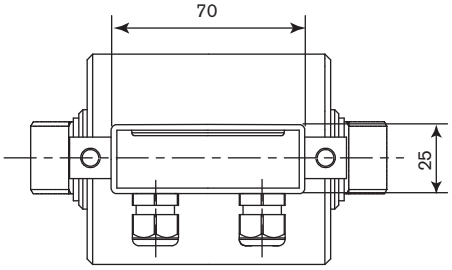
	SE56 standard compact	SE56 standard remote	SE56 basic compact	SE56 blind compact
 **S051 Sensor fitting**	-20 to 100°C *(-4 to 212°F)*	-20 to 130°C *(-4 to 266°F)*	-10 to 100°C *(14 to 212°F)*	-20 to 100°C *(-4 to 212°F)* [up to 130°C *(up to 266°F)* for max. 1 hour]

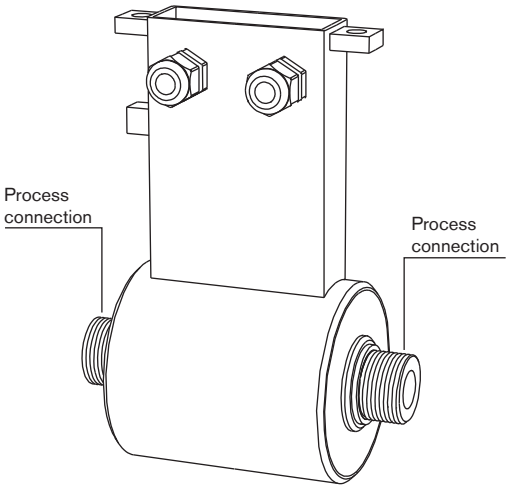
Dimensions [mm] of Type S051 sensor fitting (without full lining)

NOTE: Dimensions of SE56 electronics, see corresponding data sheet.









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

DTS 1000101292 EN Version: J Status: RL (released | freigegeben | validé) printed: 29.08.2013

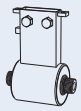
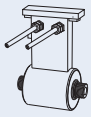
Ordering chart for flowmeter 8051

A complete flowmeter Type 8051 consists of:

- a sensor fitting Type S051
- an electronics Type SE56

Please order the relevant sensor fitting and the electronics separately!

Sensor fitting Type S051

Description	DN [mm]	Process connection	Flow rate range [l/h] min. 0... 0.4 m/s	Flow rate range [l/h] max. 0... 10 m/s	Body material	Wetted parts material: Connection / Electrode	Wetted parts material: Seal	Wetted parts material: Lining	Item no.
Compact version 	03	G1/4" (ISO 228-1)	0... 10	0... 250	SS 304	SS 316L	FKM	PTFE	554 321
		NPT1/4"	0... 10	0... 250	SS 304	SS 316L	FKM	PTFE	554 213
	06	G3/8" (ISO 228-1)	0... 40	0... 1000	SS 304	SS 316L	FKM	PTFE	553 065
		NPT3/8"	0... 40	0... 1000	SS 304	SS 316L	FKM	PTFE	555 892
	10	G1/2" (ISO 228-1)	0... 120	0... 3000	SS 304	SS 316L	FKM	PTFE	553 374
		NPT1/2"	0... 120	0... 3000	SS 304	SS 316L	FKM	PTFE	555 111
	15	G3/4" (ISO 228-1)	0... 240	0... 6000	SS 304	SS 316L	FKM	PTFE	553 481
		NPT3/4"	0... 240	0... 6000	SS 304	SS 316L	FKM	PTFE	557 659
	20	G1" (ISO 228-1)	0... 500	0... 12500	SS 304	SS 316L	FKM	PTFE	553 539
		NPT1"	0... 500	0... 12500	SS 304	SS 316L	FKM	PTFE	553 663
Remote version with 10 m cable (included) 	03	G1/4" (ISO 228-1)	0... 10	0... 250	SS 304	SS 316L	FKM	PTFE	448 487
	06	G3/8" (ISO 228-1)	0... 40	0... 1000	SS 304	SS 316L	FKM	PTFE	448 488
	10	G1/2" (ISO 228-1)	0... 120	0... 3000	SS 304	SS 316L	FKM	PTFE	448 489
	15	G3/4" (ISO 228-1)	0... 240	0... 6000	SS 304	SS 316L	FKM	PTFE	448 490
	20	G1" (ISO 228-1)	0... 500	0... 12500	SS 304	SS 316L	FKM	PTFE	448 491

i Further versions on request

Please also use the "request for quotation" form on page 7 for ordering a customized sensor fitting go to page.

Electronics Type SE56 (for more data, refer to data sheet Type SE56)

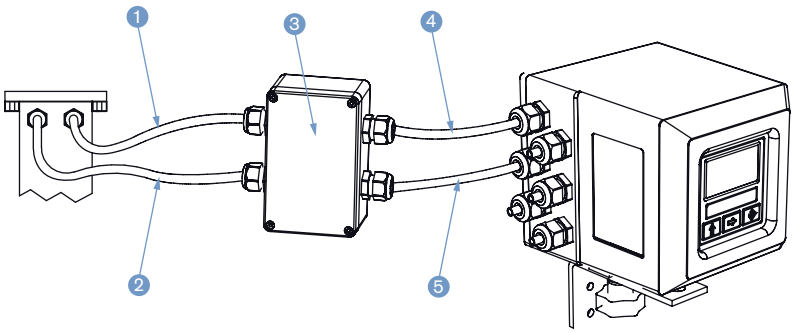
Description	Power supply	Outputs	Body material	Electrical connection	Item no.
Standard compact version with display	90... 265 V AC	2 transistors	Aluminium	6 cable glands	558 745
			Stainless steel	6 cable glands	559 780
		2 transistors + 4... 20 mA	Aluminium	6 cable glands	558 747
			Stainless steel	6 cable glands	558 306
Standard wall-mounting version with display	90... 265 V AC	2 transistors	Aluminium	6 cable glands	559 781
			Stainless steel	6 cable glands	558 310
		2 transistors + 4... 20 mA	Aluminium	6 cable glands	558 750
			Stainless steel	6 cable glands	558 308
Basic compact version with display	90... 265 V AC	2 transistors	Nylon	3 cable glands	562 439
		2 transistors + 4... 20 mA	Nylon	3 cable glands	562 440
	18... 63 V DC	2 transistors	Nylon	3 cable glands	562 443
		2 transistors + 4... 20 mA	Nylon	3 cable glands	562 444
Basic compact version without display	90... 265 V AC	2 transistors	Nylon	3 cable glands	562 441
		2 transistors + 4... 20 mA	Nylon	3 cable glands	562 442
	18... 63 V DC	2 transistors	Nylon	3 cable glands	562 445
		2 transistors + 4... 20 mA	Nylon	3 cable glands	562 446
Blind compact version	20... 30 V DC	up to 4 transistors	Stainless steel	2 cable glands	559 132
		up to 4 transistors + 4... 20 mA	Stainless steel	2 cable glands	559 133
		up to 4 transistors + PROFIBUS DP	Stainless steel	2 cable glands	559 134

DTS 1000101292 EN Version: J Status: RL (released | freigegeben | validé) printed: 29.08.2013

Ordering chart for spare parts/accessories for sensor fitting Type S051

Description	Purpose	No. on drawing	Item no.
Electrode cable, 10 m long	for connection between sensor fitting Type S054/S055 without junction box, S051 or S056 and electronics Type SE56*	1	448 518
	for connection between sensor fitting Type S054/S055 with junction box and electronics Type SE56* or for connection between extension cable kit and electronics Type SE56*	4	562 851
Coil cable, 10 m long	for connection between sensor fitting Type S054/S055 without junction box S051 or S056 and electronics Type SE56*	2	448 519
	for connection between sensor fitting Type S054/S055 with junction box and electronics Type SE56* or for connection between extension cable kit and electronics Type SE56*	5	562 852
Extension cable kit	including a connecting box and resin	3	562 853

* (see corresponding data sheet)



Further versions on request

Electrical connection
Electrode and coil cables length

DTS 1000101292 EN Version: J Status: RL (released | freigegeben | validé) printed: 29.08.2013

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Note
You can fill out the fields directly in the PDF file before printing out the form.

Sanitary sensor fitting Type S051 - request for quotation

Please fill out and send to your nearest Bürkert facility* with your inquiry or order.

NOTE:
Please take into account that the sensor fitting Type S051 must be associated with one of the electronics Type SE56.
If only the sensor fitting is ordered, please indicate on your order the version (standard, blind or basic) or better the item no. of the electronics Type SE56 with which it will be associated

Company:	Contact person:
Customer No.:	Department:
Address:	Tel. / Fax.:
Postcode / Town:	E-mail:

Full Bore Magflow sensor fitting S051

Quantity: ☐ **Desired delivery date:** ☐

- **Pipe diameter:** ☐ DN03 ☐ DN06 ☐ DN10 ☐ DN15 ☐ DN20
- **Process fitting connection:**
  - **External thread** ☐ ISO 228-1 ☐ DIN 11851 ☐ NPT ☐ SMS 1145
  - **Clamp** ☐ ISO 2852 ☐ BS 4825
  - **Flange** ☐ DIN 2501 ☐ ANSI
- **Pressure:** ☐ PN16 ☐ PN40
- **Materials:**
  - **Seal** ☐ FKM ☐ EPDM ☐ FFKM
  - **Wetted parts** ☐ 316L ☐ 304 and PTFE full lining
  - **Electrodes** [1] ☐ 316L (2 M.E.)* ☐ Hastelloy (2 M.E. + 2 G.E.)* ☐ Tantalum (2 M.E. + 2 G.E.)* ☐ Titanium (2 M.E. + 2 G.E.)* ☐ Platinum (2 M.E. + 2 G.E.)*

  * M.E. = measuring electrode and G.E. = ground electrode
- **Flowmeter version:** ☐ Compact ☐ Remote
- **Cable length:** ☐ meter (for cable length > 20 m a preamplifier is included. Caution! Price increase)

reset form

[1] **If the pipe is in plastic then it is advised to choose 3 electrodes, if it is in metal then 2 electrodes are enough.**

Electronics SE56 More info. When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet, and then you can fill out the SE56 request for quotation form.

To find your nearest Bürkert office, click on the orange box → **www.burkert.com**

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