Betriebsanleitung / Operating Manual Mode d'emploi / Instrucciones de servicio

Durchlaufgeber DGMa DGMa In-Line Probe Housing Chambre d'analyse DGMa Detector de paso DGMa





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Betriebsanleitung in Deutsch von Seite 3 bis 18



Operating Instructions in English from page 19 to page 34



Mode d'emploi en français de la page 35 à la page 50



Instrucciones de servicio en español de página 51 hasta página 66

Technische Änderungen vorbehalten. Subject to technical modifications. Sous réserve de modifications techniques. Reservadas modificaciones técnicas. Please read the operating instructions through completely before commissioning this in-line probe housing! Do not discard! The operator shall be liable for any damages caused by installation or operating errors!

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Identity Code Ordering System For In-Line Probe Housing Modules

DG	M	Flo	w I	Hous	sing	Мо	dule	•			
		А	Ser	ies Veı	rsion						
	L		0 1 2 3 4	Flow No f With With With With	w mon flow m n l/h sc n gph s n flow s n flow s	itor m onitor ale scale (l sensor sensor	odule: JS) , I/h sc , gph s	ale scale (L	JS)		
				0	Nun No f	nber o PG 13.	f PG 1 5 mod	3.5 mo	dules	:	
				1 2 3 4	1 One PG 13.5 module 2 Two PG 13.5 modules 3 Three PG 13.5 modules 4 Four PG 13.5 modules						
					0 1 2	Number of 25 mm modules: 0 No 25 mm modules 1 One 25 mm module* 2 Two 25 mm modules* *assembly set required (791818)					
						Т	Mai Tran	n mate	erial: t PVC		
							0	Sea FPN	l mate I-A	rial:	
								0 1 9	Con 8 x 5 PVC Con	nections: 5 hose DN 10 threaded connector nector nipple/expansion module	
									0	Versions: With ProMinent [®] logo Without ProMinent [®] logo	
										Accessories included: Wall mounting for PG 13.5 module: calibration cup	
										The identity code below describes a flow monitor with sensor, two PG 13.5 sensor) and a 25 mm module (e.g. for ch 8 x 5 hose connector.	fully assembled combination of modules (e.g. for pH and redox nlorine sensor CLE 3). Fitted with
										Recommended accessories:	Order No.
										Sensor mounting kit 25 mm (CLE, BRE, CGE, CTE, CDE, OZE):	791818
										for potential equaliser: plug	791663
										flow sensor	791635
										additional calibration cup	791229
										Sampling Tap for DGM	
										for 13.5 module	1004737
										ior 23 min module	1004739
↓		¥	↓	¥	↓	¥	↓ ↓	¥	¥	FPM = Fluoroelastomer	
DGI	М	Α	3	2	1	т	0	0	0		

General Notes for the User

Please read through the following notes. This information will help you use the operating manual more effectively.

Points are highlighted as follows:

- lists
- instructions

Operating advice:

NOTES

Notes are intended to make your job easier.

and safety advice:



WARNING

Describes a potentially dangerous situation. Non-observance can lead to serious personal injury!



IMPORTANT

Describes a potentially dangerous situation. Non-observance can lead to damage to property!

1 About the In-Line Probe Housing

The in-line probe housing has a modular structure. To maximise volume, it is designed so that one sensor can be installed in every module. The ideal flow around the sensors keeps response times low. The flow is guided towards the sensors from below.

The in-line probe housing modules are supplied pre-assembled on a mounting panel.

2 Safety

For use as specified below:

- The DGMa must be used exclusively for drinking water, swimming pool water or water of a similar quality that does not contain solid matter.
- Operate the in-line probe housing only within the conditions described in the technical data!
- All other applications and modifications are prohibited.
- The DGMa must not be used for gaseous or solid media.
- · The DGMa must be assembled and installed by trained, authorized staff only.
- You shall be responsible for observing the information provided in the operating instructions at the various phases in the service life of the device!

Safety advice



IMPORTANT

- Before using the DGMa in corrosive media, check the resistance of the housing material (please refer to the chemical resistance list in ProMinent's product catalogue or www.prominent.com).
- Observe the maximum operating parameters for the whole in-line probe housing (e.g. pressure, temperature). Take into account the lowest maximum operating parameters of the in-line probe housing components and sensors (please refer to the individual operating manuals). Please also note any temperature dependences.

3 Description of Component Function

The ball valve (1) regulates and stops the flow. The flow module (2) has a float (4), which indicates the flow.

A flow sensor (3) monitors the flow. There is a reed contact (changeover) in the tip of the flow sensor, which opens if the float moves more than 2 mm away from the sensor or closer towards it.

The flow plug ensures optimal flow to the membrane capped DULCOTEST[®] sensors ("25 mm", pos. 10). It prevents air bubbles from forming on the membrane of the DULCOTEST[®] Perox sensor (PG 13.5, pos. 5).

The equipotential plug (8) contains a potential equaliser pin.

The outlet nozzle (6 or 10 for 25 mm or PG 13.5 version) (standard) and the sampling tap (11, 25 mm or PG 13.5 version) (optional) allow you to take water samples and empty a module. The calibration cup (8) can be used to calibrate the pH or redox sensors without dismantling them. It also has a potential equaliser pin.





4 Storage and Transport



IMPORTANT

- Store and transport the DGMa in its original packaging.
- Protect the DGMa from the effects of chemicals, even when packed.

Environmental conditions

Storage and transport temperature: -10 °C ... + 60 °C Humidity: with flow sensor: max. 90 % relative humidity, non-condensing

5 Assembly and Installation

5.1 Assembly



IMPORTANT

- Observe the flow direction (there are arrows on the modules).
- Install the in-line probe housing horizontally in an upright position.
- If it contains a flow module, install the in-line probe housing vertically. Failure to do so may lead to problems with flow measurement.
- Leave a space of approx. 300 mm above and 100 mm below the modules for:
 - Installing the sensors
 - Setting the flow monitor
 - Screwing in the calibration cup
 - Taking samples

NOTE

Moistening the seals slightly first will make it easier to assemble the components of the in-line probe housing.

Securing the mounting panel (Please observe dimensioned drawing! See figure 5):

- Drill 2 mounting holes in a smooth wall
- Secure the mounting panel to the wall.

Installing the connections

- Screw the ball valve onto the in-flow side
- Screw a connector set onto the ball valve
- Screw a connector set onto the out-flow side

Installing the sensors and flow sensor

IMPORTANT

The first module must be the in-line probe housing module.

Sensor with PG 13.5 threaded connector (please refer to the sensor operating manual):

- Remove the upper blanking plug of a module
- With pH and redox sensors, remove the transparent protective cap if there is one (do not discard the protective caps)
- Screw the reducing pipe nipple into the module
- Screw in the sensor
- With DULCOTEST[®] Perox sensors, screw the flow plug of an in-line probe housing module into the module from below

Sensor with a diameter of 25 mm (please refer to the sensor operating manual and figure 2):



IMPORTANT

Lower the sensor into the in-line probe housing slowly to avoid stretching the membrane.

- Remove the upper blanking plug of a 25 mm module
- First push the O-ring (4) and then the mounting plate (5) onto the sensor (3) from below
- ► Then push the retaining screw (1) onto the sensor (3) from above
- ► Insert the sensor (3) carefully into the modul
- ► Tighten the retaining screw (1)
- Screw a flow plug (6) into the bottom of the module





Flow sensor (see figure 3)

- Remove the upper blanking plug of the flow module
- Push the flow sensor (1) into the flow module
- ► Tighten the reducing pipe nipple (3)
- ► Tighten the clamping nipple (2)

Figure 3 Installing the flow sensors



Installing additional accessories:

- Screw in the equipotential plug underneath the appropriate sensor
- ▶ Instead of a lower blanking plug, screw in the sampling tap (two sizes: PG 13.5 or d = 25 mm).

5.2 Hydraulic Installation



IMPORTANT

- Observe the maximum operating parameters for the whole in-line probe housing (e.g. pressure, temperature, flow)! Take into account the lowest maximum operating parameters of the in-line probe housing components and sensors (please refer to the individual operating manuals)! Please also note the temperature dependence of the maximum pressure!
 - Assemble the in-line probe housing in such a way that the modules cannot drain off and fill with air, even when the water is stationary!
- There must be stop valves in the in-flow and out-flow of the module block!
- When assembling the in-line probe housing, take steps to prevent positive suction pressure from building up inside it!
- When installing the in-line probe housing in a free flow system, lay the out-flow cable in an ascending S-shape.
- Install a filter in the supply cable of the in-line probe housing if the water is contaminated (take into account any depletion caused by the filter).
- If the in-line probe housing is installed in a fixed pipe, the power supply must be switched off before the module block is fitted.
- Connect the in-flow cable to the ball valve connector set
- Connect the out-flow cable to the connector set on the out-flow side.

5.3 Electrical Installation



WARNING

- Connect the flow sensor to extra-low voltage circuits only ((SELV) in accordance with EN 60335-1)!
 - The cable must have a diameter of 4 mm for the screwed cable gland to possess the type of protection IP 65.
- Take hold of the upper part of the flow sensor, turn it a quarter of a turn anticlockwise and remove it (bayonet fitting).
- ► Loosen the locking screw of the M12 connection and insert the cable from the alarm device.
- Strip 2 cm off the cable.
- Strip the ends of the wires and fit connector sleeves.
- Connect the flow sensor to the alarm unit in accordance with the following table:

Terminal	Contact
1	N/C
2	Source (C)
3	N/O

Technical data (voltage-free reed contact):

Switch power	max. 3 W
Switch voltage	max. 42 V (protective extra-low voltage (SELV))
Switch current	max. 0.25 A

- Provide approx. 5 cm of spare cable inside the flow sensor and tighten the attachment screw of the M12 connection.
- Push the upper part of the sensor right into the housing and carefully turn it clockwise until it locks into place, taking care that the notches on the bayonet fitting do not break off.

6 Commissioning the DGMa

6.1 Setting the Flow

Use the ball valve to change the flow. Read the flow off the flow module (upper edge of the float).

6.2 Setting the Switch Point of the Flow Sensor



IMPORTANT

- It is possible for water to escape and spray arround.
- Take appropriate measures, if necessary.
- A drop in the flow should cause the contact to open (the flow sensor is connected via an N/C contact (T1 T2; (NC C)):
- Use the ball valve to set the flow at 50 l/h
- ▶ Hold the flow sensor tightly and loosen the clamping nipple slightly
- Use the flow sensor to push the float down to 40 l/h the connected alarm should be deactivated automatically
- Hold the flow sensor tightly and tighten the clamping nipple
- ▶ To test it, decrease the flow this should activate the alarm
- Check that the threaded connector is sealed properly.

6.3 Calibrating the Sensors



IMPORTANT

- It is possible for water to escape and spray arround. Take appropriate measures, if necessary.
- If a potential equaliser pin is used during measurement, a potential equaliser pin must also be connected during calibration and immersed in the same medium as the sensor (please refer to the operating manual of the measurement and control system).

pH and redox sensors:

pH and redox sensors can also be calibrated/checked after installation. Use the calibration cup supplied for this purpose.

- Close the ball valve in the in-flow of the in-line probe housing
- Close the stop valve in the out-flow of the in-line probe housing
- Unscrew the blanking plug of the appropriate module
- Fill the calibration cup with buffer solution up to the mark
- Screw the calibration cup carefully into the module from below
- If a potential equaliser pin is used during measurement, connect the potential equaliser pin to the calibration cup.
- Calibrate/check the sensor (please refer to the operating manual of the control system).
- Unscrew the calibration cup and screw in the blanking plug
- Connect the potential equaliser pin of the blanking plug
- Open the ball valve slightly and check that the module is sealed properly before opening the system fully
- Set the flow as required (see section 6.1).

Membrane capped sensors:

Please refer to the operating manual for the sensor.

6.4 Replacing/Adding Modules

IMPORTANT

- It is possible for water to escape and spray arround. Take appropriate measures, if necessary.
- All module connections are fragile. Tighten them gently by hand.

NOTE

- If you would like 4 or 5 modules instead of just 2 or 3, a mounting panel for 4 to 5 modules is required.
- Moistening the seals slightly first will make it easier to assemble the modules.

To replace a module, proceed as follows:

- Close the ball valve and, if there is one, the stop valve on the out-flow side
- Unscrew and store the sensors (please refer to the sensor operating manuals)
- Remove all hoses from the in-line probe housing
- Unscrew all modules and release them from the clamps
- Empty the modules
- ▶ If a larger mounting panel is required, remove the existing mounting panel from the wall
- Release the module that is to be replaced from the module block (figure 4 in reverse)
- Check that all O-rings are inserted on the connection nipples of the new module
- Moisten the connection nipple of the new module with water
- Place the new module on the module block as shown in figure 4.



IMPORTANT

• All of the arrows on the modules must point in the same direction.

If the modules cannot be screwed in easily, start again.
If you do not, the connection will not be sealed properly and you will not be able to separate the modules again without damaging them.

- ► Turn the module clockwise until it is straight upside down
- ▶ If a larger mounting panel is required, move the clamps
- Press the new module block into the mounting panel clamps
- Close the outlet nozzle or the sampling tap
- If it has been removed, screw the mounting panel back onto the wall
- Screw in the sensors and, if necessary, calibrate them (please refer to the sensor operating manuals)
- Connect the hoses of the in-line probe housing
- Open the ball valve and, if there is one, the stop valve on the out-flow side slightly
- Check that the modules are sealed properly
- Set the flow





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7 Troubleshooting



IMPORTANT

It is possible for water to escape and spray arround. Take appropriate measures, if necessary.

Failure:	the float does not show the correct flow rate or has become stuck
Reason:	dirt in the water in the in-line probe housing module

Remedy: clean the module and the float using a cloth and test tube brush, or other similar item, and, if necessary, insert a filter



IMPORTANT

Do not use chemical cleaning agents! They may attack the DGMa!

Reason: Remedy:	the in-line probe housing module is not completely straight install the in-line probe housing module so that it is vertical
Failure: Reason: Remedy:	the flow sensor contact does not open the reed contact has jammed because the electrical voltage was too high (even if only for a short period) reduce the voltage using a protective resistor and replace the flow sensor
Failure: Reason: Remedy:	the reading produced by a pH or redox sensor is unstable. It cannot be calibrated. a potential equaliser pin has not been connected although the measurement and control system has been prepared for it. connect a potential equaliser pin (use an equipotential plug)
Reason: Remedy:	the measurement and control system has not been prepared for measurement with a potential equaliser pin (e.g. there is no jumper in the system) prepare the measurement and control system for this type of measurement (e.g. jumper two terminals in the system)
Reason: Remedy:	the measurement and control system has not been prepared for measurement without a potential equaliser pin (e.g. terminals 9 and 10 in the DULCOMETER® D1C have not been jumpered) prepare the measurement and control system for this type of measurement (e.g. connect a jumper in the system)
Reason: Remedy:	the sensor is dirty, defective or requires regeneration clean, replace or regenerate the sensor (please refer to the sensor operating manual)
Failure: Reason: Remedy:	there is air in the in-line probe housing the in-line probe housing has been installed incorrectly install the in-line probe housing correctly (please refer to the "Installation" section) Open the stop valves fully and increase the flow rate to a maximum of 100 l/h until the air is forced out of the in-line probe housing
Failure: Reason: Remedy:	the sampling tap does not release any water positive suction pressure in the in-line probe housing install the in-line probe housing correctly (please refer to the "Installation" section)
Failure: Reason: Remedy:	the flow changes over a few hours the module admission pressure is not constant check the function of the pump in front of the in-line probe housing. Check that the pump has been installed correctly.

8 Disposal



IMPORTANT

Please observe the applicable national regulations.

You may return the decontaminated used equipment to ProMinent Dosiertechnik GmbH, Heidelberg, against prepaid postage.

9 Technical Data



IMPORTANT

- The maximum operating parameters for the whole in-line probe housing (e.g. pressure, temperature, flow) are the lowest maximum operating parameters of the in-line probe housing components and sensors (please refer to the individual operating manuals)!
- Please also take the technical data of all other parts used, e.g. sensors, and their operating manuals into account!

Storage and transport temperature	-10 °C + 60 °C
Humidity	with flow sensor: max. 90 % relative humidity,
	non-condensing

9.1 Flow Modules

Weight	approx. 245 g (F approx. 475 g (2	PG 13.5 module) 25 mm module)
Material	all modules all fittings seals calibration cup mounting panel	transparent PVC grey PVC FPM PP white PVC
Temperature	max. 50 °C	
Max. pressure	without flow ser without flow ser with flow sensor	nsor, 30 °C: 6 bar nsor, 50 °C: 1 bar r, 30 °C: 2 bar
Flow rate	max. 80 l/h (40 l	/h recommended)
Measuring accuracy of the flow module	±51	
Pressure loss in fitted modules	flow module: PG 13.5 module 25 mm module:	12 mbar (12 cm WS) 2 mbar (2 cm WS) 20 mbar (20 cm WS)

9.2 Flow Sensor

Protection system	IP 65
Terminal connector cross section	0.1 mm ² 1.0 mm ²
Connecting cable cross section	4 mm

Data for the voltage-free reed contact in the flow sensor:

Switch power	max. 3 W
Switch voltage	max. 42 V (protective extra-low voltage (SELV))
Switch current	max. 0.25 A
Operating current	max. 1.2 A
Contact resistance	max. 150 mW
Switch hysteresis of the flow sensor	approx. 15 %

Terminal	Contact
1	N/C
2	Source (C)
3	N/O

10 Replacement Parts and Accessories

	Order No.
Assembly set for 25 mm sensor (CLE, BRE, CGE, CTE, CDE, OZE)	791818
for potential equaliser: plug	791663
Flow sensor, complete	791635
Calibration cup	791229
Sampling tap for 25 mm module for PG 13.5 module	1004739 1004737
Flow plug for PG 13.5 module	791703
Extension module flow with scale I/h	1023923
Extension module flow with scale gph	1023973
Flow sensor for extension module flow (optional)	791635
Extension module PG 13.5 sensors	1023975
Extension module for 25 mm sensors	1023976





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12 List of Replacement Parts





List of Replacement Parts

Pos. Type	No. of	Description	Order No.
		DGMa in-line probe housing	
1	1	Flow sensor cpl. PC	791635
2	1	Floating cpl. PC	791634
3	1	Mounting plate 258x10x135 (2/3 mod.)	1001853
3	1	Mounting plate 412x10x135 (4/5 mod.)	1001855
4	1	Labor ball valve PVC	1010380
5	1	Calibration cup PP	791229
6	1	Wall fastening	791228
7	1	Connection set 8x5-1 PC3	790886
8	2	Screwing set cpl. DN10 PC1	791665
9	1	DGM module without logo PVC-transparent	791667
9	1	DGM module with logo PVC-transparent	791217
10	1	Flow meter module gph without logo PVC-transparent	791672
10	1	Flow meter module gph with logo PVC-transparent	791671
10	1	Flow meter module I/h without logo PVC-transparent	791670
10	1	Flow meter module I/h with logo PVC-transparent	791637
11	1	DGM mod. 25 mm without logo PVC-transparent	791674
11	1	DGM module 25 mm with logo PVC-transparent	791673
12	1	Red.nipple M30/PG13.5-d14.8 PVDF	791219
13	2	Blanking plug M30x4 P2 PVDF	791220
14	1	Connection nipple M20x6 P2 P	791226
15	1	Connection nipple M20x6P2-M20x1.5 P	791227
16	1	Blanking plug M20x1.5 P	791235
17	1	Flow plug M30x4 P2 P	791703
18	1	Blanking plug M34x1.5 PVDF	791734
19	1	Clamped disk d31.3/25.5x1.5 P	791733
20	1	Connection nipple G1/4xM20x1.5 P	1006236
21	1	Red.nipple M30/PG13.5-d16	791688
22	1	Attachment screw M34x1.5-d25.5 PVDF	791732
23	1	Equipotential plug w. rod PC1	791663
24	1	Clamped hipple PG 13.5-d15.5 P	791223
25	1	Flow plug M34x1.5 P	740207
26	1	Clamped disk d 18.5/d 15.5X2 P	791225
27	1	Providing nut for mounting plate PP	1001856
20	1	PT-Screw KB 50X20 garvanized	400440
29	1	Sampling tap for 25 min module	1004739
30	1	Sampling tap for PG 13,5 module	1004737
31	1	Outlet nozzle DGMa cpl. M15.5	1008770
১∠ ১০	1	Connection ningle M20v6 D2vC1/4 D	1006771
24	1		701406
34	1	O-filig/fil 9.00 - 2.00 83FFN-A	791490
30	1	0-111g/11 10.00 - 2.00 03FFW-A	401027
30	1	O = 1119/K = 13.00 = 2.00 07 FFM = A	401013
30	∠ 1	O-filig/m 15.00 - 2.00 63FFM-A	/91039
30	1	O-mg/m 15.00 - 2.00 00FFW-A	401U1/ 701090
40	1	O = 100 g/m + 17.17 = 1.70 GSFFW-A O = ring/m 20.00 = 2.50 g2EDM A	/ 91909
40	1	O = 100 mg/m 20.00 = 2.00 OSF F WEA	401020
41	1	$\Omega_{\rm ring/m}^{24.00} = 2.000011 {\rm W}_{\rm A}$	401034 1000700
42	1	0-mig/m 20.00 - 0.00 00FFIVI-A	1002722

Subject to technical alterations.