

Commissioning

1. GENERAL

1.1. General remarks on the operating instructions

These operating instructions show how the device can be installed and operated safely in the prescribed manner. If, in this respect, difficulties arise which cannot be remedied with the aid of the operating instructions and product information, then further information should be requested from the supplier/manufacturer. The manufacturer reserves all rights for making technical changes or improvements at any time. The use of these operating instructions requires the user to be suitably qualified. The operating personnel must be instructed according to the operating instructions.

1.2. General fundamental principles

Honsberg monitoring and measurement devices mainly operate on an electromechanical basis. For this reason the general installation and operating instructions as well as the product information refer to the mechanical and electrical operating data of the individual devices or device groups.

2. HAZARD INFORMATION

2.1. Terms relevant to safety

The indicating terms DANGER, WARNING, CAUTION and NOTE are used in these operating instructions for information about particular hazards or for extraordinary information needing special labelling.

DANGER indicates that by non-observance there is a danger to life and / or substantial property damage may occur.

WARNING indicates that by non-observance there is a risk of severe injury and / or property damage may occur.

CAUTION indicates that by non-observance there is a risk of injury and / or property damage may occur.

NOTE indicates that particular attention should be paid to technical aspects. The observance of information, not specially highlighted, on transport, assembly, field and servicing information as well as technical data (in the operating instructions, product information and on the device itself) is however just as essential in preventing problems which can on your part directly or indirectly cause personal injury and property damage.

2.2. Qualified personnel

These are persons who are familiar with the siting, installation, commissioning and operation of the product and who have qualifications suitable to their activities and functions, such as for example: Instruction and responsibility for maintaining all application conditions, regional and in-house regulations and requirements. Training or instruction according to the standards of safety engineering in the care and use of appropriate safety and worker protection equipment.

3. USAGE

3.1. Storage

- Storage temperature -20°C to 65°C, dry and free of contamination.
- In damp areas drying agents or heating is required against the formation of condensed water.

3.2. Transport

- Transport temperature -20°C to 65°C, dry and free of contamination.
- Protect from external effects such as shock, impact and vibration.

3.3. Handling prior to fitting

- With versions with a protective cap, remove the cap immediately before installation.
- Protect against the effects of weather, e.g. wet conditions.
- Proper treatment provides protection against damage.

4. FIELD OF APPLICATION

Data can be taken from the product information.

5. METHOD OF OPERATION

Data can be taken from the product information.

6. TECHNICAL DATA

Data can be taken from the product information.

7. INSTALLATION GUIDELINES

Apart from the general installation guidelines, attention should be paid to the following points:

7.1. General

- **NOTE!** Flush the pipe system before fitting.
- **NOTE!** Carry out sealing when fitting.
- **NOTE!** Note direction of flow; if fitting orientation is defined, then carry out fitting appropriately.
- **DANGER!** Note operating pressure, pressure level and temperature range.
- **NOTE!** Ensure no stress is produced when fitting.
- **CAUTION!** Only use the device for the medium specified.
- Bleed the system before putting into operation.
- **WARNING!** Thermal expansion of the pipework must be taken up by compensators.
- **NOTE!** The device must not be used as the fixed point when compensating with compensators.
- **NOTE!** Do not exceed max. flow rate. The functional value of the switching range is always related to the reducing flow (protection against defects).
- **NOTE!** The system pressure must lie above the value of the arising pressure loss.
- **NOTE!** Inverted installation orientation only with clean media.
- **CAUTION!** Avoid pressure shocks and excess deflections on the measurement systems.
- **NOTE!** 5 x diam. as smoothing section on inlet and outlet.
- **NOTE!** Use dirt trap with heavily contaminated media.
- **CAUTION!** In the case of measurement substances loaded with ferritic material, we recommend the installation of the Honsberg Magnetic Filter Volumat ZV.

7.2. For devices with a flange

- **NOTE!** Centre the seal between the flanges.
- **CAUTION!** Joining flanges must match up.

7.3. For devices with a flange

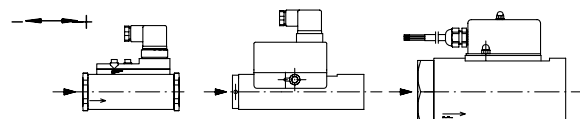
- **CAUTION!** Use the circuit diagram as a basis for wiring.
- **CAUTION!** Check the control circuit, avoid overloading the contacts.
- **NOTE!** With alternating current use a large distance between the contact and the component to be switched.

7.4. Contact protection measures for devices with reed switches

With a capacitive load or when switching filament lamps, current voltage spikes can affect the contact life. To achieve the maximum service life and to prevent damage to the contacts, a suppression circuit must be used in these cases.

Contact protection for an inductive load. When switching off an inductive load a very high self-induced e.m.f. can occur under some circumstances. The size of this voltage depends on the stored energy and on the speed of the switch-off.

- With direct voltage. A diode in parallel to the load or reed contact. The voltage spikes are equal to the voltage drop in the conducting direction of the diode.
- With alternating or direct voltage. An RC network in parallel to the load or reed contact.



Commissioning

- With alternating or direct voltage. Protection by Zener diodes, voltage spikes occur up to a maximum of the Zener voltage.

Contact protection for a capacitive load. When switching a capacitor or also longer lengths of line, higher switch-on currents occur whose intensity depends on the capacitance and the line length. The current spikes can be reduced by a series-connected resistor. Dimensioning of the suppression resistor depends on the corresponding circuit, but the resistance should be as high as possible to limit the discharge current to a permissible level.

Contact protection for a lamp load. The resistance of a cold filament is about ten times that in the glowing condition. During switch-on this leads to a 10-times larger switch-on current, even if only briefly. This current pulse can be limited by a series-connected resistor. This type of protection is however associated with dissipation. Another possibility would be to preheat the filament via a resistance in parallel to the reed contact.

8. INFORMATION ON HAZARDS DURING INSTALLATION, OPERATION AND MAINTENANCE

DANGER! Safe operation of the device is only ensured if it is properly installed, put into operation and serviced by qualified personnel taking into account the warning information in these operating instructions. In addition conformance to the general installation and safety regulations for pipework and plant construction as well as the proper use of tools and protective equipment must be ensured. For all work on the device please observe the operating instructions and the product information pertaining to the device. Non-compliance may result in injury or property damage.

9. PUTTING INTO OPERATION

- **DANGER!** Before putting the device into operation, the details about material, pressure, temperature and direction of flow should be checked.
- **NOTE!** The TRB 700 must be observed.
- **CAUTION!** Deposits in the pipework and fittings (dirt, welding droplets, etc.) are bound to lead to leaky points and faulty functioning.

DANGER! Before putting a new system into operation or putting a system into operation again after repairs or modifications, it must be ensured that:

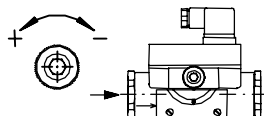
- All fitting and installation work has been properly concluded.
- The device is put onto operation by qualified personnel.
- The correct functional setting on the device is used.
- Protective devices are fitted or existing ones repaired.

10. ADJUSTMENT

The switching value on our mechanical monitoring devices can be adjusted. This is sometimes provided externally, sometimes underneath a protective cover.

HD1 / HD

Slightly loosen the cap nut and adjust the device with knurling. Retighten the cap nut.

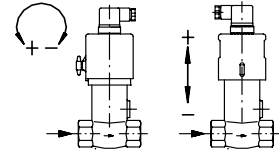


HR / MR / MR1 / RVM / FW1

Slightly loosen screw(s) and move switch head to desired position, then retighten screw(s).

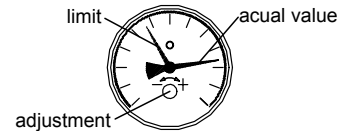
VD / VR

Slightly loosen screw and turn (VD) or move (VR) switch head to desired position, then retighten screw.



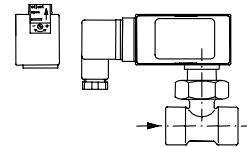
TZ1 / UZ

The flow meter has a limit pointer on the scale. With this the switching value on the scale itself can be set using a special spanner (**NOTE!** Supplied attached to the device - please keep with operating instructions.) The switching value is tripped by the actual-value pointer passing the limit pointer.



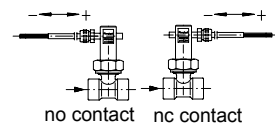
UR3 / UM3 / NW3 / MW3

Open the slide. Adjustment via an adjustment screw (**IMPORTANT!** Max. 50 Nmm). Reclose the slide. The adjustment screw is designed for 7 turns to cover the adjustment range. Example: Adjustment range 13-16.5 l/min corresponds to 3.5 l/min adjustment span over 7 turns. The adjustment is therefore 0.5 l/min per turn. **NOTE!** Please use a Size 1 screwdriver.



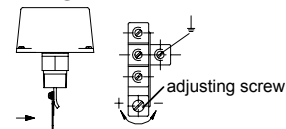
UR1 / UR2

Loosen the stud bolt and move contact tube to desired position. Retighten stud bolt. (**IMPORTANT!** Max. UR1 0.3Nm, UR2 0.1Nm)



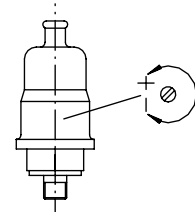
CRE / CRG / CWE / CWG

Loosen screws and remove cover, set desired switching value with adjusting screw, refit cover.



PM / PH

Loosen the cover and set desired switching value with adjusting screw. Refit cover to device.



GENERAL CHARACTERISTICS

Mechanical Flow Switch for liquids or gaseous media. A bellow-supported paddle activates an adjustable micro switch. Rugged design in brass or stainless steel.

- * operational range a diameter 25-200
- * good repeatability
- * low pressure loss

Male thread R1" brass/stainless steel



CRG-025HM

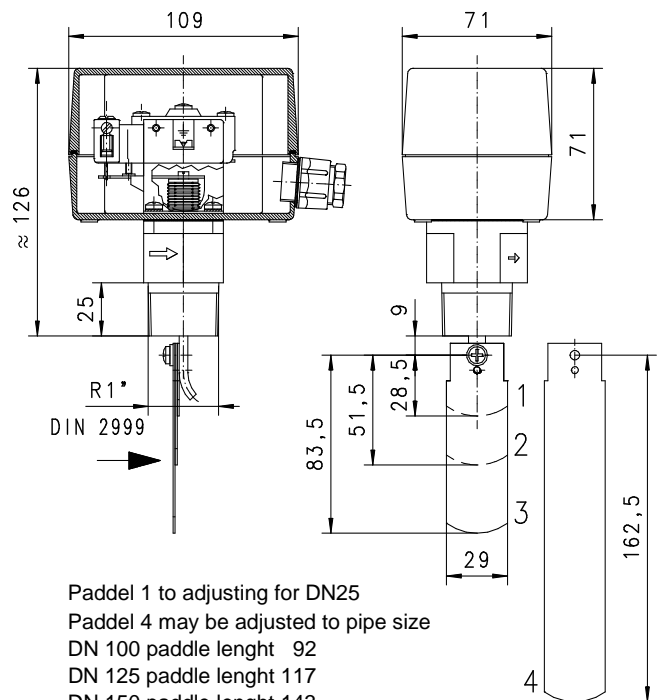
TECHNICAL DATA

DN	Qmax. recom. m³/h H₂O	adjustable range m³/h H₂O	adjustable range reduced m³/h H₂O	paddle
25	3.6	0.6 - 2.0	0.2 - 1.0	1
32	6	0.8 - 2.8	0.25- 1.4	1
40	9	1.1 - 3.7	0.5 - 1.9	1
50	15	2.2 - 5.7	0.9 - 3.6	1,2
65	24	2.7 - 6.5	1.2 - 4.9	1,2
80	36	4.3 - 10.7	2.1 - 7.4	1,2,3
100	60	11.4 - 27.7	4.9 - 17.1	1,2,3
	60	6.1 - 17.3	3.3 - 11.6	1,2,3,4
150	120	35.9 - 81.7	16.6 - 47.6	1,2,3
	120	12.3 - 30.6	6.1 - 21.4	1,2,3,4
200	240	72.6 - 165.7	25.7 - 90.1	1,2,3
	240	38.6 - 90.8	21.7 - 55.3	1,2,3,4

Adjustable range is indicated for horizontally decreasing flow.

pressure	CRG-025HM	11 bar static 11 bar dynamic
	CRG-025HK	30 bar static 11 bar dynamic
media temperature	max. 120°C	
average pressure loss	0.08bar at Qmax.	
hysteresis	depending on switch value minimum 0.1 l/min.	
weight	CRG-025HM	0.90kg
	CRG-025HK	0.95kg

Attention! Paddle fixation not secured.
With critical conditions (i.e. vibration) please protect paddle screws.



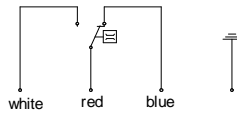
Paddel 1 to adjusting for DN25
Paddel 4 may be adjusted to pipe size
DN 100 paddle lenght 92
DN 125 paddle lenght 117
DN 150 paddle lenght 143
from DN 175 original paddle lenght

MATERIALS

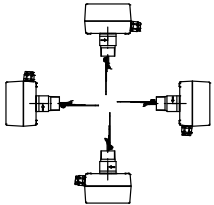
	CRE-025HM	CRE-025HK
housing	brass Ms58	stainless steel 1.4571
paddle	stainless steel 1.4571	stainless steel 1.4571
bellow	tombak	stainless steel 1.4571
cap	ABS	ABS

ELECTRICAL DATA

micro switch - wiring 0.374 change over
250 V AC 15(8) A
cable gland Pg11
protection class IP 65



MOUNTING POSITION



Installation position may influence switch value.

METERING SUBSTANCES



water



oil



design stainless steel CRG-025HK for aggressive liquids

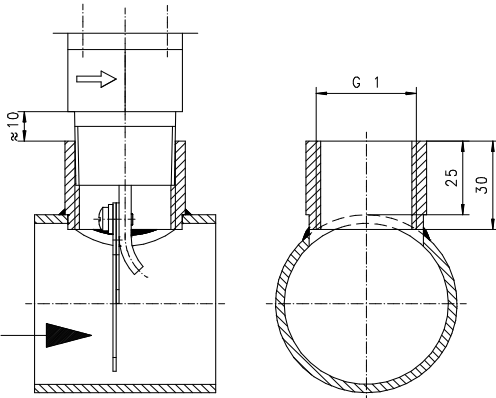
NOMENCLATURE

CRG-	025	H	M	S	basic type
	025				specification
		H			● connection thread DN25 - R1"
			M		● socket thread
			K		● brass design
				S	● stainless steel design
				R	● cable gland in cap
Special option					○ reduced adjustable range
VARIO					□ gold contacts 125 V AC / 1 A adjustment

IMPORTANT FOR YOUR ORDER

- Please indicate flow direction, metering substance and adjustable range with your order.
- With viscous liquids please indicate viscosity, temperature and metering substance (adjustable range on request)

INSTALLATION RECOMMENDATIONS



tube DIN 2448 standard wall thickness

SPECIAL APPLICATIONS

flow switch
TÜV-approval



wind vane switch



Request please the data sheet 3.1.CRE.

Request please the data sheet 3.1.YR.



All technical changes reserved

IBASIC Standard ○BASIC Programme option □VARIO Special option ⊕ PLUS Accessories ✗ not recommendable