


Operating instructions

EN

OMNIPLUS-RRI OMNIPLUS-RRH

 **IO-Link**

**Impeller
Flowmeters**



Members of GHM GROUP:

- > GREISINGER
- > HONSBERG
- > Martens
- > DeltaGHM
- > VAL.CO

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1 About this documentation

1.1 Foreword

Read this document carefully and familiarize yourself with the operation of the product before using it. Keep this document within easy reach and preferably in the immediate vicinity of the product so that you or the users can refer to it or read it up at any time in case of doubt.

The product has been developed according to the current state of the art and meets the requirements of the applicable European and national directives. All corresponding documents are deposited with the manufacturer.

Installation, commissioning, operation, maintenance, and decommissioning may only be carried out by technically qualified personnel. The qualified personnel must have carefully read and understood the operating instructions before starting any work.

1.2 Purpose of the document

- This document describes the assembly as well as the installation, operation and maintenance of the product.
- This document provides important information for safe and efficient handling of the product.
- In addition to the Quick Start Guide, this document serves as a detailed reference guide to the product.

1.3 Legal notice

The manufacturer's liability and warranty for damages and consequential damages expires in the event of improper use, non-observance of this document, non-observance of safety instructions, general safety regulations, use of insufficiently qualified specialist personnel and unauthorized modification of the product.

Perform maintenance and servicing on this product only as described in this documentation. In doing so, stick to the specified action steps. For your own safety, use only original spare parts and accessories from the manufacturer. We assume no liability for the use of other products and any resulting damage.

This document is entrusted to the recipient for personal use only. Any unauthorized transmission, duplication, translation into other languages or excerpts from these operating instructions are prohibited.

The manufacturer assumes no liability for printing errors.

1.4 Correctness of content

The contents of this document have been checked for accuracy and are subject to a continuous correction and maintenance process. This does not exclude possible errors. Should you nevertheless find errors or have suggestions for improvement, please inform us immediately using the contact information provided in order to make this document increasingly user-friendly.

1.5 Additional information



NOTE

All documentation for the sensor can be found on the product page online at:

www.ghm-group.de

The following information can be downloaded from this page:

- these operating instructions in English and German
 - datasheets
 - dimensional drawings, 3D PDF and 3D CAD models
 - further publications related to the sensors described here (e.g. IO-Link, IODD)
-

2 Safety

2.1 Explanation of the safety symbols



DANGER

Symbol warns of imminent danger, death, serious bodily injury or serious damage to property in case of non-observance.



CAUTION

Symbol warns of possible dangers or harmful situations which, if not avoided, will cause damage to the device or the environment.



CAUTION

Symbol warns of electrical voltage.



NOTE

Symbol indicates procedures which, if not followed, may have an indirect effect on operation or cause an unforeseen reaction.

2.2 Predictable misapplications

The proper functioning and operational safety of the product can only be guaranteed if the generally applicable safety precautions and the device-specific safety instructions in this document are followed during use. Failure to observe any of these instructions may result in personal injury or death, as well as material damage.



DANGER

Wrong application area!

In order to prevent misconduct of the product, injury to personal injury and material damage, the product must only be used for use as described in Chapters **2.4 Intended Use** and **3 Product Description** of the Operating Instructions.

- The product is not suitable for use in potentially explosive atmospheres!
- The product must not be used for diagnostic or other medical purposes on humans or animals!
- The product is not suitable for use with functional safety requirements!

2.3 Safety instructions

The product must be used in accordance with the technical data and the notes in these operating instructions. Technical data can be found in the respective valid product datasheet (product information).



CAUTION

Functional impairment

Errors during installation, assembly or configuration of GHM products may impair the proper functioning of the subsequent process or lead to damage. However, serious hazards do not necessarily result directly from our products.

- Ensure proper and correct installation, assembly as well as programming and configuration of the product!
- Provide independent safety measures!
- Only allow settings to be carried out by qualified personnel!



CAUTION

Misbehavior!

If it can be anticipated that the product can no longer be operated safely, it must be taken out of service and secured against further use by labeling. The safety of the user may be impaired by the device if, for example, it exhibits visible damage, no

longer operates as specified or has been stored for a long time under unsuitable conditions.

- Visual inspection!
- If in doubt, send the product to the manufacturer for repair or maintenance!



CAUTION

Temperature damage!

Exposure of the product to a temperature not specified in the Technical Data chapter may cause errors, defects, or heat/frost damage.

- Take note of the temperature range!



CAUTION

Overstressing!

Failure to properly install and operate the product will result in a defect.

- Observe the tightening torque!
- Do not use as a fixed point!
- Use filters for contaminated media!



NOTE

This product does not belong in children's hands!

2.4 Intended use

For reasons of safety and warranty, only personnel authorized by the manufacturer may carry out interventions beyond those described in the operating instructions.

Unauthorized alterations or modifications are explicitly prohibited.

If used improperly or not as intended, this product may present application-specific hazards.

The products are intended for the measurement and monitoring of the volumetric flow rate of liquids in pipelines, especially water and aqueous solutions.

The suitability of the devices for other media as well as the conditions of use, taking into account technical limits specified in the data sheet, must be ensured by the operator.

This product is intended for use in machines and systems and for the use of media of fluid group II according to directive 2014/68/EU. Specified technical limit values according to the respective valid product data sheet must not be exceeded.

2.5 Qualified personnel

For commissioning, operation and maintenance, the personnel concerned must have a sufficient level of knowledge of the measurement procedure and the significance of the measured values. This document makes a valuable contribution to this. The instructions in this document must be understood, observed and followed.

To ensure that no risks arise from the interpretation of the measured values in the actual application, the user should obtain further expertise in case of doubt. The user is liable for damage/hazards resulting from misinterpretation due to insufficient expertise.

This document contains the information required for the intended use of the product described therein. It is intended for technically qualified personnel who have been specially trained or have relevant knowledge in the field of automation technology or measurement and control technology. Knowledge and technically correct implementation of the safety instructions and warnings contained in these instructions are prerequisites for safe assembly, installation and commissioning as well as for safety during operation of the device described.

Only qualified personnel have the necessary expertise to correctly interpret the safety instructions and warnings used in these instructions in specific individual cases and to put them into practice.

2.6 Standards

OMNIPLUS-RR/RRH complies with the following standards and directives:

Harmonized standards:

DIN EN 61326-1: 2013	General EMC requirements
DIN EN 61326-2-3:2013	Special EMC requirements
EN IEC 63000:2019	Restriction of hazardous substances

Directives:

2014/30/EU	EMC Directive
2011/65/EU	RoHS 2
2015/863/EU	RoHS 3
1907/2006/EU	REACH

3 Product description

3.1 Function

The products of the OMNIPLUS-RRI and OMNIPLUS-RRH series are impeller flow-meters. They measure the flow rate (volume per unit time) of low-viscosity liquid media.

The adjustment is done at the factory with water. The suitability for other media may be limited. In the case of media with a density and/or viscosity that deviates from water, deviations in measured values are to be expected.

The integrated OMNIPLUS electronics display both the instantaneous value of the flow rate and the volume already flowed (volume counting).

The OMNIPLUS electronics are equipped with an analog output and two digital outputs. These can be programmed in a variety of ways.

In addition, the electronics have an IO-Link interface. This allows digital communication with the sensor.

3.2 Principle of operation

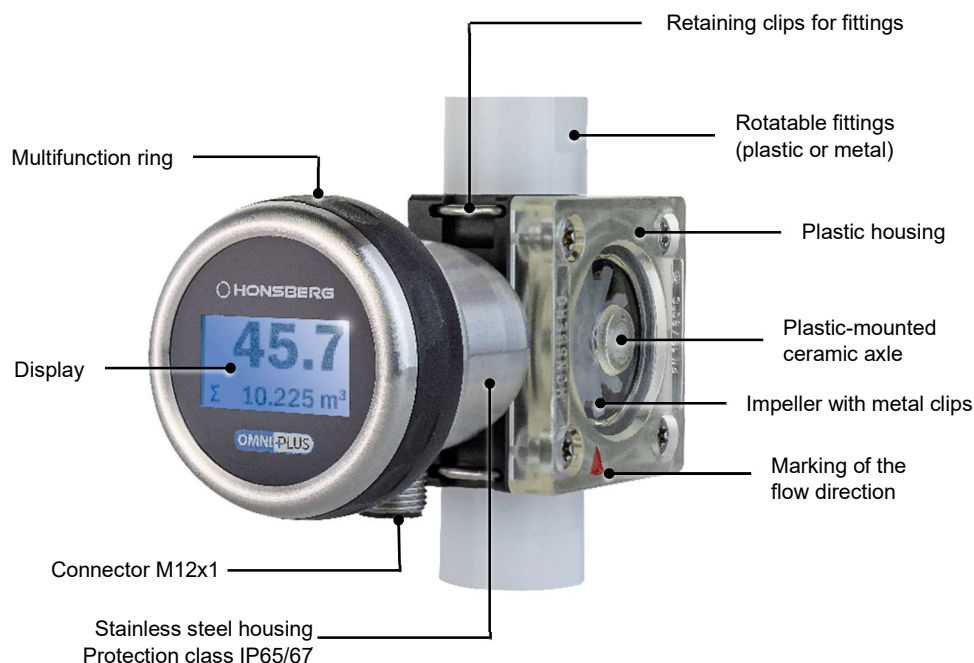
OMNIPLUS-RRI and **OMNIPLUS-RRH** measure the volume flow with the help of an impeller driven by the flowing medium. The rotation of the rotor is detected by a sensor mounted outside the flow chamber and converted into electrical pulses. The frequency of the occurring pulses is a measure of the flow rate. This is evaluated and displayed by the integrated OMNIPLUS electronics.

The products of the **OMNIPLUS-RRI** series have plastic housings. In order to be able to detect the rotation of the impeller through the housing, metal clips are attached to the impeller. An inductive sensor serves as a sensor. There are no magnets in the flow space.

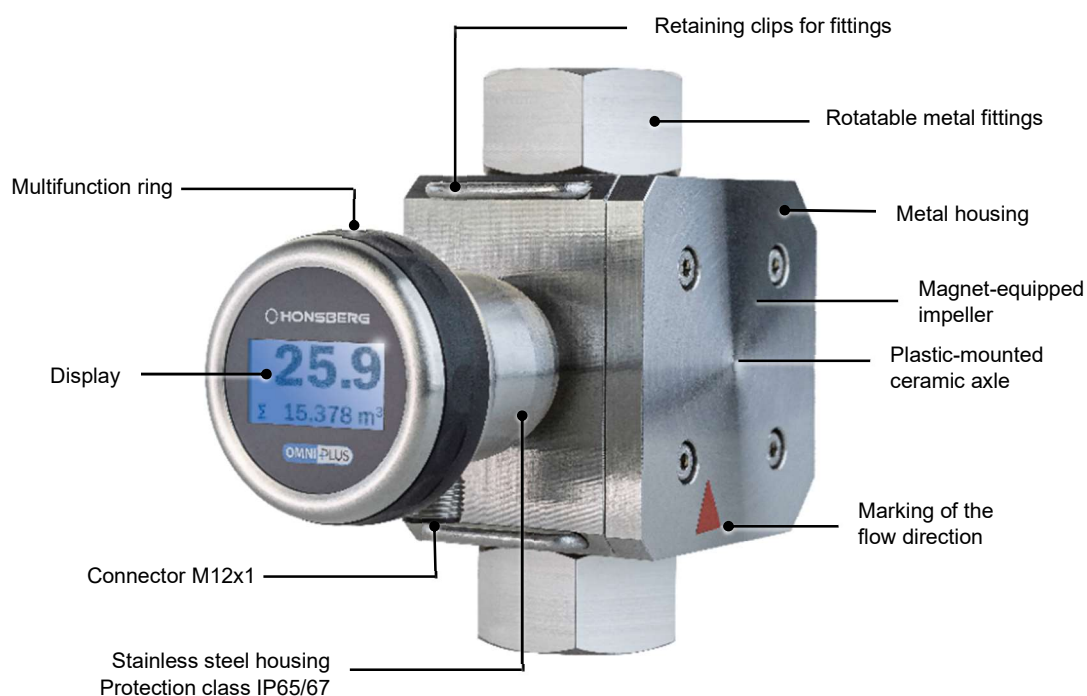
The products of the **OMNIPLUS-RRH** series have metal housings. In order to be able to detect the rotation of the impeller through the housing, magnets are attached to the impeller. A magnetically sensitive Hall element serves as a sensor.

3.3 Features

3.3.1 OMNIPLUS-RRI



3.3.2 OMNIPLUS-RRH



3.4 Scope of delivery

Please check the completeness of your product after opening the package. You should find the following components:

- OMNIPLUS-RRI or OMNIPLUS-RRH
- Quick guide to installation and commissioning

4 Installation

4.1 General information

- The devices are suitable for both horizontal and vertical flow. However, the installation position must always be chosen in such a way that the axis of the impeller is horizontal.
- The installation position should be chosen in such a way that any air bubbles that may occur can pass through the device without collecting in the device. It is recommended to install it with a flow direction from bottom to top.
- The installation location should be chosen in such a way that dry running of the measuring instrument is excluded.
- The measuring mechanisms of the instruments consist of smooth-running, high-quality impellers. The ingress of foreign objects into the measuring mechanism can lead to blocking, damage and also destruction. The ingress of foreign objects must therefore be avoided.
- Before installing the measuring instrument in the pipeline, it must be ensured that the pipeline no longer contains any inadmissible contamination (foreign particles, chips, abrasives, etc.). The pipeline should therefore be flushed before mounting with blind pieces instead of the measuring instrument.
- In order to prevent the ingress of foreign particles into the measuring instrument during operation, it is recommended to use a filter with a suitable mesh size in front of the measuring point (available as an accessory).

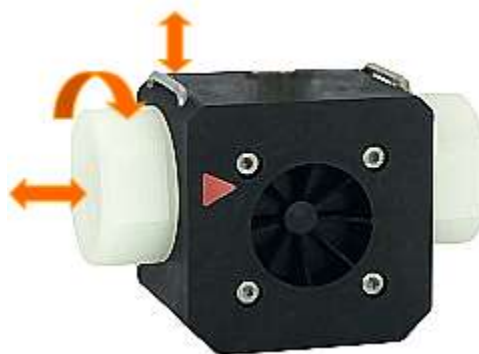
4.2 Installation in the pipeline

The instruments of the OMNIPLUS-RRI and OMNIPLUS-RRH series have rotatable fittings that can be easily separated from the device by the user for installation in the pipeline.

For this purpose, the retaining clip is removed.

The fitting can now be pulled out and mounted on the pipeline.

Depending on the design of the connector, suitable sealants must be used, e.g. PTFE tape or liquid seal. In any case, care must be taken to ensure that sealants do not enter the flow chamber and lead to malfunction of the impeller.



Subsequently, the instrument is placed on the mounted connecting piece with a twisting movement and secured again with the retaining clip.

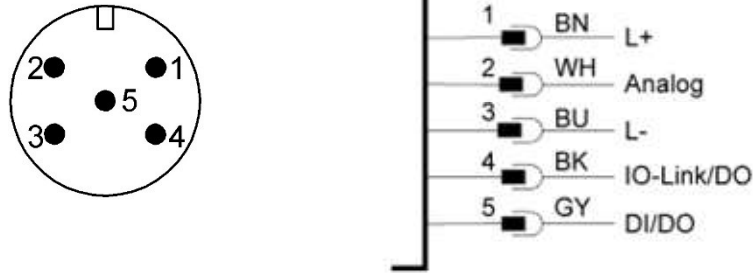
Care must be taken to ensure that the O-rings located on the fittings are not damaged during assembly.

4.3 Electrical connection

The electrical connection may only be made by a qualified electrician. The national and international regulations for the construction of electrotechnical systems of the respective operating country apply.

The product has a 5-pin circular connector. For the electrical connection, a suitable connection cable with a suitable mating plug must be used (available as an accessory).

Terminal assignment:



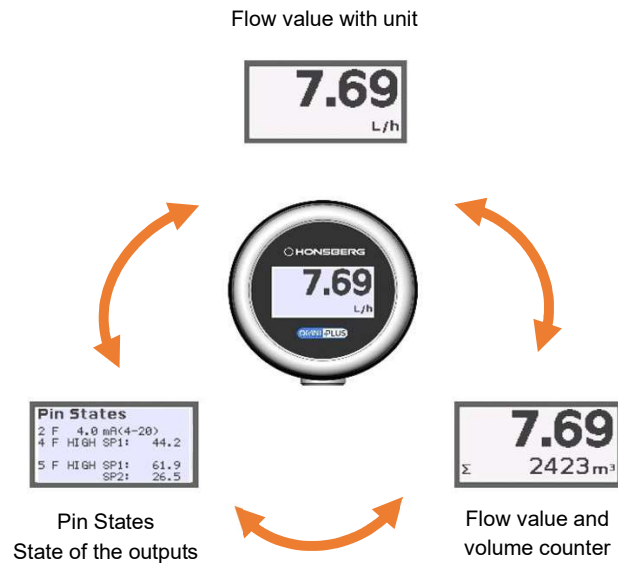
- 1 – Supply voltage
- 2 – Analog output
- 3 – 0 V
- 4 – Switching signal 1 and IO-Link
- 5 – Switching signal 2 and reset input

5 Commissioning

After installation in the pipeline, commissioning is carried out by:

1. Application of the supply voltage
2. Configuration of the electronics
3. Filling the pipeline with medium
4. Applying flow

Re 1: Immediately after the supply voltage has been applied, the OMNIPLUS electronics display the current flow measurement value with unit.



There are two other displays that can be made visible cyclically by rotating the ring:

- **Pin States** shows the status of the existing outputs.
- **Flow value and volume counter** also shows the flow measurement value in the first line and the flowed volume instead of the unit in the second line (only visible if the volume counter is activated).

The devices are preconfigured at the factory in such a way that they do not require any further configuration for the most common applications.

The default settings include:

- Measured value display in "l/min"
- Number of decimal places depending on the measuring range
 - o < 10 l/min -> 2 decimal places
 - o 10... 99 l/min -> 1 decimal place
 - o >= 100 l/min -> no decimal place
- Analog output set to 4... 20 mA
(4 mA = no flow / 20 mA = maximum flow in forward direction)
- Volume counter activated (reset via multifunction ring)
- Switching outputs disabled

Re 2: To adapt to the requirements of the application, the electronics can be configured in many ways.

Configuration options include, but are not limited to:

- Type of analog output (current or voltage)

- Analog output range
- Function of the switching outputs (limit switch, frequency output, pulse output)
- Changes in the display of measured values (unit, decimal place)
- Disabling of the volume counter

For details, see the following chapters → **6Fehler! Verweisquelle konnte nicht gefunden werden.** Operation and → 6.5 Configuration.

Re 3: The filling of the pipeline should be carried out in such a way that pressure surges and high start-up speeds of the instruments are avoided. Otherwise, there is a risk of damage!

It must also be taken into account that air can flow through the instruments during the filling of the pipeline until the measuring medium arrives at the measuring point, so that there is no lubricating effect from the medium. Filling must therefore be carried out correspondingly slowly.

Re 4: After the pipeline has been completely filled (free of air bubbles), the volume flow to be measured can be applied to the instruments.

6 Operation

6.1 Control element

The OMNIPLUS head has a rotatable ring as a control element, the multifunction ring, which has a tactile grid in 15° increments (24 positions). It can be rotated as far to the left or right without stopping. In this way, it enables, for example, scrolling through menus or changing values.

In addition, the ring can be moved in the axial direction away from the viewer by approx. 2.5 mm against the force of a spring and returns to its original position when released. This implements a tactile function that is used, for example, to select menu items or to confirm entries.



turnable



axially movable

In the following text, the following abbreviations are used for the operation of the ring:

Short description	Meaning
RING LEFT	Rotation of the multifunction ring by one position to the left
RING RIGHT	Rotation of the multifunction ring by one position to the right
RING TURN	Rotation of the multifunction ring by one or more position(s) to the left or right
RING SHIFT	Axial displacement of the multifunction ring (tactile function)

In general, the following applies:

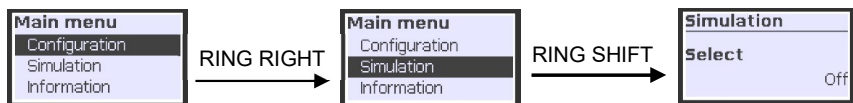
1. RING LEFT, RING RIGHT and RING TURN are used to select a value or menu item.
2. RING SHIFT confirms the selection.

6.2 Basic operations

6.2.1 Selection of menu items

In a menu, a menu item is selected by RING TURN and then confirmed with RING SHIFT.

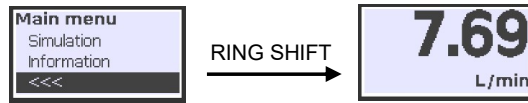
Example:



Each menu contains the option <<<.

This leads back to the next higher level.

Example:



6.2.2 Parameter Selection

Parameters are displayed along with their setting value.

In the upper line, the menu item to which the parameter belongs is underlined.

RING TURN leads to the next or previous parameter of this menu item.

Example:



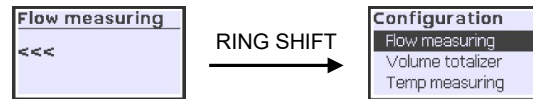
RING SHIFT allows the parameter to be changed afterwards.

Example:



In the sequence of the parameters, there is also the option <<<.

It leads back to the next higher menu.

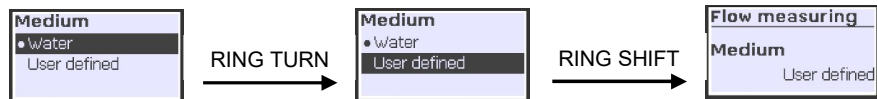


6.2.3 List selection

For parameters whose value is selected from a list, the currently used value is marked with a dot. The selected parameter is displayed inversely.

To change it, the new value is selected with RING TURN and confirmed with RING SHIFT.

Example:







It is not possible to exit the edit mode without selection.

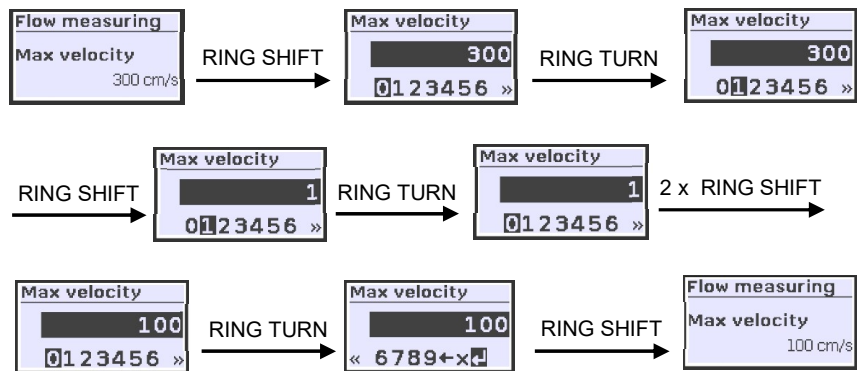
6.2.4 Numerical inputs

Numerical inputs are made by selecting the digits with RING TURN and confirming them with RING SHIFT.

In addition to the digits, other characters are available:

-  Decimal point (only if the input value allows decimal places)
-  Left arrow: deletes the last character you entered
-  x: exits the editor without changing the previous value
-  Enter: takes the entered value and exits the editor

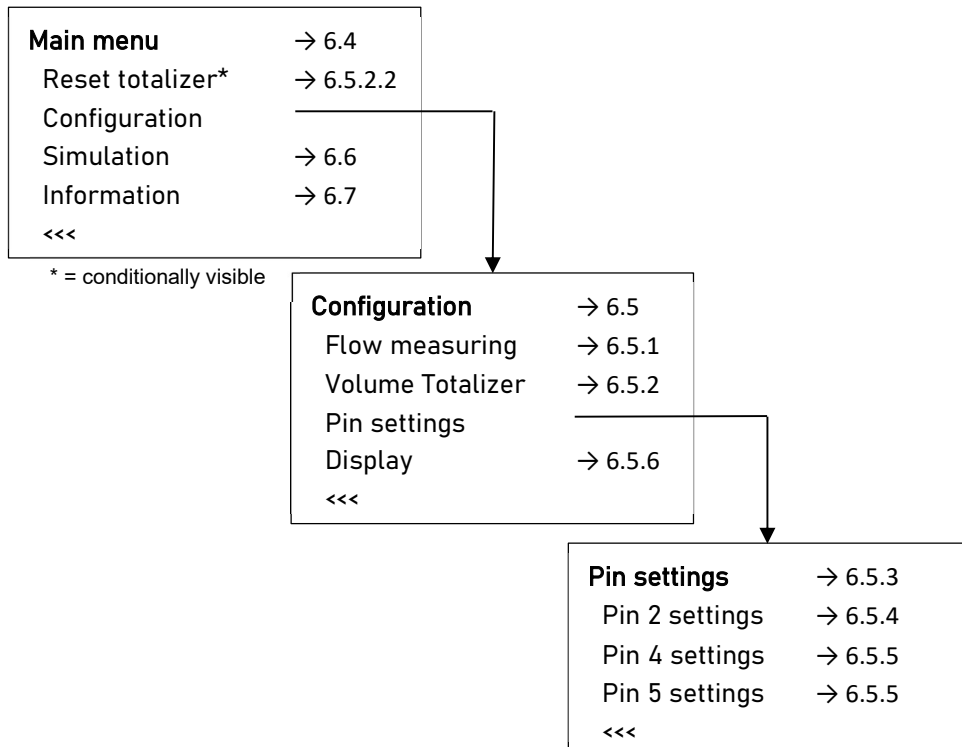
Example:



6.3 The menu structure

The menu structure provides the operator with access to all parameters and information of the OMNIPLUS electronics.

It consists of the main menu and two submenus.



Behind the menu items you will find information, parameters and parameter groups, which are explained in more detail in the specified chapters. The menu language is English. Language switching is not provided.

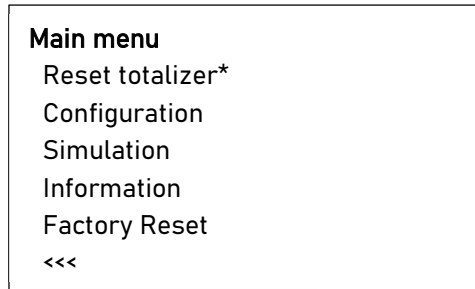
6.4 The main menu

The main menu provides access to the menu structure, which provides access to information about the device as well as configuration options.

6.4.1 Entering the main menu

The main menu can be entered from both the measured value display and the pin status display.

The menu appears after RING SHIFT for 2 seconds:



* = conditionally visible

The opening of the main menu can be locked, which is indicated by the display



See → 6.4.2 Locking the main menu

The **Reset Totalizer** menu item offers the possibility to reset the volume counter to zero with the help of the ring. It only appears if the volume counter is activated and Reset mode = Ring.

Details see → 6.5.2.2 Parameter Reset Mode

The **Configuration** menu item provides access to all parameters required to configure the OMNIPLUS electronics for the individual application.

Details see → 6.5 Configuration

A flow measurement can be simulated via the **Simulation** menu item. The display and the outputs then behave as if this value were measured.

Details see → 6.6 Simulation

In the **Information** submenu you will find all important information about the product (e.g. Product name, Serial number, Hardware revision, Firmware revision etc.).

Details see → 6.7 Information

The **Factory Reset** menu item can be used to reset the device to the factory settings.

Details see → 6.8 Factory Reset

6.4.2 Locking the main menu

The product offers the possibility of locking the main menu and thus prevents the configuration from being changed. The lock can be reversed at any time.

The **lock** is done by executing a RING SHIFT for > 7 seconds in a measured value display or the Pin States screen.

After 2 seconds of RING SHIFT, the configuration layer appears.

If the ring is held for another 5 seconds, a query appears:



If this is answered with Yes, the text display appears



The opening of the main menu is no longer possible by a RING SHIFT of 2 seconds. When you try to do this, the LOCKED indicator appears instead.

It is still possible to switch between measured value displays and pin states.

The **unlocking** is done in the same way by 7 seconds RING SHIFT and then answering the query with Yes.

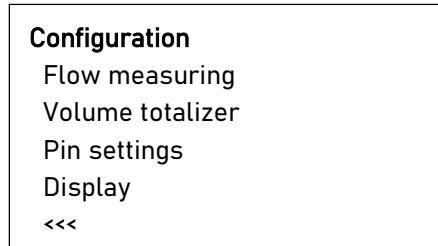


If no selection is made in the queries, there is a "timeout". The device returns to the existing state.

In addition, a lock can also be effected via an **IO-Link command**. If the blocking is carried out via IO-Link, it cannot be removed with the help of the multifunction ring.

6.5 Configuration

The **Configuration** submenu provides access to all parameters required to configure the OMNIPLUS electronics for the individual application.



Flow measuring leads to the parameters that concern the acquisition and representation of the flow rate.

Details see → 6.5.1 Parameter group Flow measuring

Volume totalizer leads to the setting options of the volume counter.

Details see → 6.5.2 Parameter group Volume totalizer

Pin settings leads to all parameters that determine the function of the signal outputs (pin 2, 4 and 5).

Details see → 6.5.3 Submenu Pin settings

Display allows the display content to be rotated 180°.

Details see → 6.5.6 Menu item Display

<<< leads back to the main menu.

6.5.1 Parameter group Flow measuring

The parameters of this group concern the recording and display of the flow rate.

<p>Flow measuring Unit Decimals Response time <<<</p>

6.5.1.1 Parameter Unit

Function	Specifies the unit for the representation of the flow measurement and the parameters related to it	
Conditions for visibility	none	
List selection	Settings	Meaning
	% FS	Display as a percentage of the measuring range
	L/min	Display in L/min
	L/h	Display in L/h
	m ³ /h	Display in m ³ /h
	% Bargraph	Bargraph display with percentage value in the lower line

In addition to the flow measurement, the following related parameters are displayed in the same unit and with the same number of decimal places:

- Analog out min / max → 6.5.4.3 Parameter Analog out min / Analog out max
- Setpoint 1 / 2 → 6.5.5.5 Parameter Setpoint 1 / Setpoint 2
- Hysteresis → 6.5.5.6 Parameter Hysteresis
- Freq scale min → 6.5.5.11 Parameter Freq scale min
- Freq scale max → 6.5.5.12 Parameter Freq scale max

The bargraph display is a compact process display that is used to visualize the flow measurement value in the range from 0 to 100%. The bargraph shows the current flow rate relative to the maximum flow rate.



6.5.1.2 Parameter **Decimals**

Function	Specifies the maximum number of decimal places for the representation of the flow measurement and the parameters related to it	
Conditions for visibility	none	
List selection	Settings	Meaning
	0.	No decimal place
	0.0	Max. one decimal place
	0.00	Max. two decimal places
	0.000	Max. three decimal places

The display shows a maximum of 4 digits in total. If the measured value to be displayed does not allow the display of all decimal places, the number of decimal places is automatically reduced.

In addition to the representation of the flow measurement, the parameter also influences the parameters related to it, see list under → 6.5.1.1 Parameter Unit

6.5.1.3 Parameter **Response time**

Function	Specifies the response time of the flow measurement
Conditions for visibility	none
Numerical input	Adjustment range
	0.1 ... 99.9 s

Response time is the time that elapses after a sudden change in the flow rate until the measurement result has taken on the new value.

With the help of this parameter, fluctuations in the measurement result can be reduced.

6.5.2 Parameter group **Volume totalizer**

The OMNIPLUS electronics has a volume counter that can add up the volume flowed.

If the volume counter is activated, the counter reading can be displayed in the measured value display by RING TURN together with the instantaneous value.

An adjustable preset value can generate a switching signal on pin 4.

The **Volume totalizer** parameter group contains all parameters that influence the behavior of the counter.

<p>Volume totalizer</p> <ul style="list-style-type: none"> Totalizer Reset mode Preset counter Preset unit Preset value <<<

If signals are to be put out to pin 4, it must be configured accordingly (→ 6.5.5 Parameter groups Pin 4 settings and Pin 5 settings).

The meter reading is not secured if the supply voltage is interrupted!

6.5.2.1 Parameter **Totalizer**

Function	Enabling or disabling the volume counter	
Conditions for visibility	none	
List selection	Settings	Meaning
	Off	Volume counter is disabled
	On	Volume counter is enabled

If the volume counter is disabled, the parameters described below are not visible.

6.5.2.2 Parameter **Reset Mode**

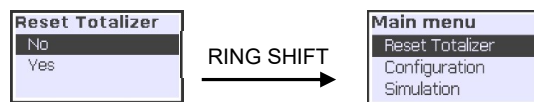
Function	Selection of the reset method of the volume counter	
Conditions for visibility	Parameter Totalizer = On (→ 6.5.2.1)	
List selection	Settings	Meaning
	None	No reset possible
	Preset counter	The reset takes place when the preset value is reached. The counting then starts again (cycle operation).
	External (pin 5)	The reset is done by an external signal on pin 5, which must be configured accordingly (see pin 5 settings). The type of signal can be defined in pin 5 settings.
Ring	The reset is done in the main menu via the menu item Reset Totalizer .	

There are several methods available to reset the volume counter to zero. Only one method can be used at a time.

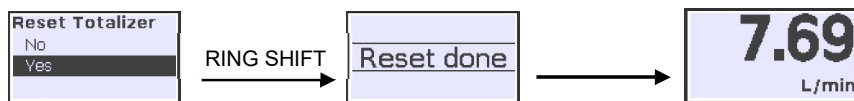
Reset with the ring from the main menu:

After selecting the menu item **Reset Totalizer** with RING SHIFT, you will be taken to a query.

If this is answered with **No**, the display returns to the main menu. The volume counter reading remains unchanged.



If the answer is **Yes**, the volume counter is set to zero and restarted. The takeover is acknowledged by Reset Done. The display returns to the previous main display.



6.5.2.3 Parameter **Preset counter**

Function	Enabling or disabling the preset counter	
Conditions for visibility	Parameter Totalizer = On (→ 6.5.2.1)	
List selection	Settings	Meaning
	Off	Preset counter is disabled
	On	Preset counter is enabled

When the preset counter is enabled, a signal can be put out on pin 4 when the volume counter reaches the preset value. Pin 4 must be configured accordingly (→ 6.5.5)

If the preset counter is disabled, the parameters described below are not visible.

6.5.2.4 Parameter **Preset unit**

Function	Unit of preset value	
Conditions for visibility	Parameter Totalizer = On (→ 6.5.2.1) Parameter Preset counter = On (→ 6.5.2.3)	
List selection	Settings	Meaning
	Liter	Preset value is specified in liters
	m ³	Preset value is specified in cubic meters

6.5.2.5 Parameter **Preset value**

Function	Preset value in the unit selected under Preset unit
Conditions for visibility	Parameter Totalizer = On (→ 6.5.2.1) Parameter Preset counter = On (→ 6.5.2.3)
Numerical input	Adjustment range
	0.001 ... 9999.999

6.5.3 Submenu **Pin settings**

In addition to the IO-Link functionality, the OMNIPLUS electronics have an analog output (pin 2) and two digital inputs and outputs (pins 4 and 5), which can be programmed in a variety of ways.

Overview of the setting options:

Pin 2 is the analogue output and can be used as a current output (e.g. 4... 20 mA) as well as a voltage output (e.g. 0... 10 V). Current or voltage values can be freely assigned to flow values in the measuring range.

Pins 4 and 5 can each be used as limit switches for monitoring minimum or maximum flow rates or as frequency outputs.

Pin 4 can also be configured as a pulse output or as a signal output of the preset counter.

The pulse output puts out a pulse cyclically after a defined volume has flown. Both the pulse volume and the pulse duration can be adjusted (→ 6.5.5.13 ff.).

The signal output of the preset counter emits a signal once when the preset value is reached (→ 6.5.2.4 ff.).

Pin 5 can also be the reset input of the volume counter or represent the output signal of pin 4 inversely.

Each pin has its own settings menu. However, due to the extensive equality of the parameters of pin 4 and 5, they are described together.

Pin settings	
Pin 2 settings	→ 6.5.4
Pin 4 settings	→ 6.5.5
Pin 5 settings	→ 6.5.5
<<<	

6.5.4 Parameter group **Pin 2 settings**

The parameter group contains all parameters required to configure the analog output on pin 2.

Pin 2 settings	
Function	
Analog out mode	
Analog out min	
Analog out max	
<<<	

The analog output can be configured as both a current output and a voltage output, each with different current or voltage ranges.

A flow measurement value can be freely assigned to the lower and upper current or voltage values.

6.5.4.1 Parameter **Function**

Function	Enables or disables the analog output on pin 2	
Conditions for visibility	none	
List selection	Settings	Meaning
	Off	Disables pin 2
	Analog out flow	Pin 2 = analog output

When pin 2 is disabled, the parameters described below are not visible.

6.5.4.2 Parameter **Analog out mode**

Function	Type of analog output on pin 2	
Conditions for visibility	Parameter Function ≠ Off	
List selection	Settings	Meaning
	4-20 mA	Current output 4...20 mA
	0-20 mA	Current output 0...20 mA
	0-10 V	Voltage output 0...10 V
	2-10 V	Voltage output 2...10 V
	0-5 V	Voltage output 0...5 V
	1-5 V	Voltage output 1...5 V
	0.5-4.5 V	Voltage output 0.5...4.5 V

6.5.4.3 Parameter **Analog out min / Analog out max**

Function	2 parameters that specify the measurement range to correspond to the output range of the analog output	
Conditions for visibility	Parameter Function ≠ Off	
Numerical input	Adjustment range	
	<i>Corresponds to the measuring range of the device</i>	

Unit and decimal place correspond to the settings of the parameters **Unit** (→ 6.5.1.1) and **Decimals** (→ 6.5.1.2).

6.5.5 Parameter groups **Pin 4 settings** and **Pin 5 settings**

Pin 4 settings		Pin 5 settings	
Function	→ 6.5.5.1	Function	→ 6.5.5.1
Output driver	→ 6.5.5.2	Output driver	→ 6.5.5.2
Switch mode*	→ 6.5.5.3	Switch mode*	→ 6.5.5.3
Switch logic*	→ 6.5.5.4	Switch logic*	→ 6.5.5.4
Setpoint 1*	→ 6.5.5.5	Setpoint 1*	→ 6.5.5.5
Setpoint 2*	→ 6.5.5.5	Setpoint 2*	→ 6.5.5.5
Hysteresis*	→ 6.5.5.6	Hysteresis*	→ 6.5.5.6
Set time delay*	→ 6.5.5.7	Set time delay*	→ 6.5.5.7
Reset time delay*	→ 6.5.5.8	Reset time delay*	→ 6.5.5.8
Frequency min*	→ 6.5.5.9	Frequency min*	→ 6.5.5.9
Frequency max*	→ 6.5.5.10	Frequency max*	→ 6.5.5.10
Freq scale min*	→ 6.5.5.11	Freq scale min*	→ 6.5.5.11
Freq scale max*	→ 6.5.5.12	Freq scale max*	→ 6.5.5.12
Pulse unit*	→ 6.5.5.13	Reset input*	→ 6.5.5.21
Pulse value*	→ 6.5.5.14	<<<	
Pulse duration*	→ 6.5.5.15		
Pulse polarity*	→ 6.5.5.16		
Sync totalizer*	→ 6.5.5.17		
Preset counter*	→ 6.5.5.18		
Counter duration*	→ 6.5.5.19		
Counter polarity*	→ 6.5.5.20		
<<<			

The parameters marked with an * are only conditionally visible depending on other parameters.

The conditions for visibility are specified in the parameters.

6.5.5.1 Parameter **Function**

Function	Function of pin 4 or 5	
Conditions for visibility	none	
List selection	Settings	Meaning
	Off	Disables pin 4 or 5
	Flow switch output	Limit switch for monitoring flow rates for exceeding and/or falling below adjustable limit values
	Flow freq output	Output of an adjustable frequency depending on the flow rate
	Pin 4 only	
	Flow pulse output	Output of one pulse at a time after passing an adjustable volume
	Flow preset counter	Output of a signal after reaching the pre-selected volume counter reading
	Pin 5 only	
	Totalizer reset input	Reset input for volume counter

	Inversed pin 4	Inverse signal from pin 4 If pin 4 shows low signal, pin 5 shows high signal and vice versa. Can be used for line break detection, as pins 4 and 5 must always show different signals.
	Sensor input signal	Direct output of the input frequency (not adjustable)

Note: When operating with IO-Link, → chapter 7 must be observed.

6.5.5.2 Parameter **Output Driver**

Function	Circuit technology of the output driver	
Conditions for visibility	Parameter Function ≠ Off (→ 6.5.5.1) In addition for pin 5: Parameter Function ≠ Totalizer reset input	
List selection	Settings	Meaning
	Push-Pull	Output type Push-Pull
	NPN o.c.	Output type NPN o.c.

Explanation:

In terms of circuitry, a **push-pull** output consists of a combination of an NPN and a PNP transistor. This makes it possible to connect the output as an NPN or PNP output, i.e. a load can be switched between the output and 0 V as well as between the output and supply voltage.

The output shows either

- Low-potential (< approx. 1 V) or
- High-potential (> supply voltage minus approx. 1 V)

A parallel connection of several push-pull outputs is not permitted, as it can lead to a short circuit.

An output of the type **NPN o.c.** (open collector) consists of a transistor whose open collector is fed to the output pin.

It either shows low potential at the output or leaves it open.

An NPN o.c. output therefore requires the connection with a load (e.g. a resistor) between the output and the supply voltage or an external voltage.

The parallel connection of several NPN o.c. outputs is permissible in order to realize an OR function in this way: As soon as at least one of the NPN o.c. outputs connected in parallel shows low signal, the output signal becomes low.

NOTE

In NPN o.c mode, no IO-Link communication takes place.

When operating with IO-Link, → chapter 7 must be observed.

6.5.5.3 Parameter **Switch mode**

Function	Type of limit switch	
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1)	
List selection	Settings	Meaning
	Single point max	The measured value is compared with a limit value (setpoint 1). If this is exceeded, an alarm event is triggered.
	Single point min	The measured value is compared with a limit value (setpoint 1). If the measured value falls below, an alarm event is triggered.
	Window	The measured value is compared with two limits (setpoint 1 and setpoint 2). If setpoint 1 is exceeded or if the value falls below Setpoint 2, an alarm event is triggered. If the value of setpoint 1 is less than that of Setpoint 2, an alarm event is raised if the measured value is in the window between the two values. Outside the window, the alarm is withdrawn.

6.5.5.4 Parameter **Switch logic**

Function	Logical state of the output when an alarm event occurs	
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1)	
List selection	Settings	Meaning
	Alarm low	When an alarm event occurs, the output signal changes from high to low.
	Alarm high	When an alarm event occurs, the output signal changes from low to high.

6.5.5.5 Parameter **Setpoint 1 / Setpoint 2**

Function	Limits for flow monitoring	
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1) In addition for Setpoint 2: Parameter Switch mode = Window (→ 6.5.5.3)	
Numerical input	Adjustment range	
	<i>Corresponds to the measuring range of the device</i>	

Unit and decimal place correspond to the settings of the parameters **Unit** (→ 6.5.1.1) and **Decimals** (→ 6.5.1.2).

For meaning of the setpoint parameters see → 6.5.5.3

6.5.5.6 Parameter **Hysteresis**

Function	Hysteresis of the limit values Setpoint 1 / Setpoint 2
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1)
Numerical input	Adjustment range
	<i>Corresponds to the measuring range of the device</i>

Unit and decimal place correspond to the settings of the parameters **Unit** (→ 6.5.1.1) and **Decimals** (→ 6.5.1.2).

Hysteresis is the amount of change in reading required to withdraw a limit alarm.

Example 1:

Switching Mode: Single point min

Setpoint 1: 5.0 l/min

Hysteresis: 0.5 l/min

If the value falls below 5.0 l/min, an alarm is triggered. If 5.5 l/min (5 + 0.5 l/min) is exceeded, the alarm is withdrawn.

Example 2:

Switching Mode: Single point max

Setpoint 1: 5.0 l/min

Hysteresis: 0.5 l/min

If the limit 5.0 l/min is exceeded, an alarm is triggered. If the value falls below 4.5 l/min (5 - 0.5 l/min), the alarm is withdrawn.

In window mode, the hysteresis acts accordingly on both limits.

6.5.5.7 Parameter **Set time delay**

Function	Switching delay after the occurrence of an alarm event
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1)
Numerical input	Adjustment range
	0.0 ... 100.0 s

6.5.5.8 Parameter **Reset time delay**

Function	Switch-back delay after an alarm event has been withdrawn
Conditions for visibility	Parameter Function = Flow switch output (→ 6.5.5.1)
Numerical input	Adjustment range
	0.0 ... 100.0 s

6.5.5.9 Parameter **Frequency min**

Function	Lowest frequency to be put out at the output
Conditions for visibility	Parameter Function = Flow freq output (→ 6.5.5.1)
Numerical input	Adjustment range
	0.00 ... 1995.00 Hz

6.5.5.10 Parameter **Frequency max**

Function	Highest frequency to be put out at the output
Conditions for visibility	Parameter Function = Flow freq output (→ 6.5.5.1)
Numerical input	Adjustment range
	5.00 ... 2000.00 Hz

6.5.5.11 Parameter **Freq scale min**

Function	Bottom of scale: Measured value at which the lowest frequency Frequency min is to be put out
Conditions for visibility	Parameter Function = Flow freq output (→ 6.5.5.1)
Numerical input	Adjustment range
	<i>Corresponds to the measuring range of the device</i>

Einheit und Nachkommastellenzahl entsprechen den Einstellungen der Parameter **Unit** (→ 6.5.1.1) und **Decimals** (→ 6.5.1.2).

6.5.5.12 Parameter **Freq scale max**

Function	Top of scale: Measured value at which the highest frequency Frequency max is to be put out
Conditions for visibility	Parameter Function = Flow freq output (→ 6.5.5.1)
Numerical input	Adjustment range
	<i>Corresponds to the measuring range of the device</i>

Unit and decimal place correspond to the settings of the parameters **Unit** (→ 6.5.1.1) and **Decimals** (→ 6.5.1.2).

6.5.5.13 Parameter **Pulse unit**

Function	Unit of pulse volume	
Conditions for visibility	Parameter Function = Flow pulse output (→ 6.5.5.1)	
List selection	Settings	Meaning
	Liter	Specification of the pulse volume in liters
	m ³	Specification of the pulse volume in cubic meters

This and the following parameter are used to define the volume, after the flow of which a pulse is put out at a time.

6.5.5.14 Parameter **Pulse value**

Function	Numerical value of the pulse volume
Conditions for visibility	Parameter Function = Flow pulse output (→ 6.5.5.1)
Numerical input	Adjustment range
	0.0 ... 20000.0

With this and the previous parameter, the volume is defined, after the flow of which a pulse is put out at a time.

6.5.5.15 Parameter **Pulse duration**

Function	Duration of the pulse output to pin 4 after the set pulse volume has flown
Conditions for visibility	Parameter Function = Flow pulse output (→ 6.5.5.1)
Numerical input	Adjustment range
	10 ... 1000 ms

**NOTE**

Pulse volume and pulse duration must be selected in such a way that a pulse pause remains between the pulses even at the highest flow rate.

Example 1:

Pulse volume: 0.1 Liter

Pulse duration: 50 ms

As a result, less than 20 pulses per second can be put out.

Highest flow rate: 6 l/min = 0.1 L/s

From this it follows: after every 1 second, a pulse is output.

The parameter combination is chosen useful.

Example 2:

Pulse volume: 0.2 Liter

Pulse duration: 100 ms

As a result, less than 10 pulses per second can be displayed.

Maximum flow rate: 300 l/min = 5.0 L/s

It follows that 25 pulses would have to be output in 1 second, i.e. all 40 ms a pulse.

This is not possible with a pulse width of 100 ms!

The parameter combination is not allowed.

6.5.5.16 Parameter **Pulse polarity**

Function	Pulse polarity of the pulse output (pin 4)	
Conditions for visibility	Parameter Function = Flow pulse output (→ 6.5.5.1)	
List selection	Settings	Meaning
	positive	Pulse = high-level / Pulse pause = low-level
	negative	Pulse = low-level / Pulse pause = high-level

6.5.5.17 Parameter **Sync totalizer**

Function	Synchronization of the pulse output (pin 4) with reset of the volume counter	
Conditions for visibility	Parameter Function = Flow pulse output (→ 6.5.5.1)	
List selection	Settings	Meaning
	Yes	The counting of the pulse volume is started again (at zero) synchronously with the reset of the volume counter.
	No	Pulse output and volume counter operate independently of each other

Example 1:

Pulse volume: 1 m³

Sync to totalizer: No

After one cubic meter has passed, a pulse is put out.

If, for example, 0.3 m³ has flown after the last pulse and then the volume counter is set to zero, a pulse would be output after another 0.7 m³, i.e. at a meter reading of 0.7 m³, then at 1.7 m³, 2.7 m³, etc.

Example 2:

Puls volume: 1 m³

Sync to totalizer: Yes

If 0.3 m³ have passed here after the last pulse, and then the volume counter is set to zero, then a pulse will be put out again only after another cubic meter, i.e. with meter readings of 1.0 m³, 2.0 m³, 3.0 m³, etc.

A pulse is always emitted when the volume counter shows a multiple of the pulse volume.

6.5.5.18 Parameter **Preset counter**

Function	Behavior of the signal output of the preset counter (pin 4)	
Conditions for visibility	Parameter Function = Flow preset counter (→ 6.5.5.1)	
List selection	Settings	Meaning
	Output signal static	The output changes its state when the preset counter is reached and remains there until the preset counter is reset.
	Output pulse	The output signal changes state when the preset value is reached and falls back after an adjustable time (→ 6.5.5.19 Parameter Counter duration).

6.5.5.19 Parameter **Counter duration**

Function	Pulse duration at the signal output of the preset counter (pin 4)
Conditions for visibility	Parameter Function = Flow preset counter (→ 6.5.5.1) Parameter Flow preset counter = Output pulse (→ 6.5.5.18)
Numerical input	Adjustment range
	0.1 ... 100.0 s

6.5.5.20 Parameter **Counter polarity**

Function	Pulse polarity at the signal output of the preset counter (pin 4)	
Conditions for visibility	Parameter Function = Flow preset counter (→ 6.5.5.1)	
List selection	Settings	Meaning
	positive	signal = high level / resting state before reaching the preset value = low level
	negative	signal = low level / resting state before reaching the preset value = high level

6.5.5.21 Parameter **Reset input**

Function	Behavior of the reset input of the preset counter (pin 5)	
Conditions for visibility	Parameter Function = Totalizer reset input (→ 6.5.5.1)	
List selection	Settings	Meaning
	Edge low-high	The counter is reset to 0 on a low-high signal edge and continues to run immediately.
	Edge high-low	The counter is reset to 0 in the event of a high-low signal edge and continues to run immediately.
	Static high	The counter is set to 0 at high signal on pin 5 and only continues to run at low signal.

	Static low	The counter is set to 0 at low signal on pin 5 and only continues to run at high signal.
--	------------	--

6.5.6 Menu item **Display**

6.5.6.1 Parameter **Orientation**

Function	Rotation of the display content by 180°	
Conditions for visibility	none	
List selection	Settings	Meaning
	0°	Normal operation: orientation with plug outlet downwards
	180°	Display content rotated by 180°

The function allows the instrument to be used in installation situations that require mounting with the plug outlet facing upwards.

Orientation 0°



Orientation 180°



6.6 Simulation

In simulation mode, all outputs behave as if a certain flow rate were present. The real flow is not measured and therefore does not affect the simulation. The flow rate to be simulated can be adjusted within the limits of the measuring range.

In this way, it is possible to synchronize the output signals with the higher-level controller, regardless of the actual flow rate. The process functionality can thus be tested before the actual commissioning.

The simulation mode is signaled by a cyclic color change of the display red/white (cycle time 2 sec.) and text "Simulation". The mode remains active until it is disabled again in the Simulation submenu or the supply voltage is interrupted.

6.6.1.1 Parameter **Select**

Function	Enabling or disabling simulation mode	
Conditions for visibility	none	
List selection	Settings	Meaning
	Off	Simulation mode is disabled
	On	Simulation mode is enabled

If the simulation mode is disabled, the parameter described below is not visible.

6.6.1.2 Parameter **Flow value**

Function	Flow rate to be simulated
Conditions for visibility	Parameter Select = On (→ 6.6.1.1)
Numerical input	Adjustment range
	<i>Corresponds to the measuring range of the device</i>

Unit and decimal place correspond to the settings of the parameters **Unit** (→ 6.5.1.1) and **Decimals** (→ 6.5.1.2).

6.7 Information

The menu item **Information** in the main menu provides access to various information about the measuring device. With the ring you can scroll through the following points. However, it is not possible to change the information on the device.

Some entries can be changed by the user via IO-Link.

Designation	Meaning	Example	Changeable via IO-Link
Vendor name	Manufacturer's name	GHM Messtechnik GmbH	no
Vendor text	Here: Reference to the manufacturer's website	www.ghm-group.de	no
Product name	Type designation of the device	OMNIPLUS-R ...	no
Product text	Functional description of the device	Flow Transmitter / Switch	no
Item number	Article number of the device	xxxxxx	no
Serial number	Serial number	yyyyyyyy	no
Hardware rev.	Hardware revision	HW-V1.00	no
Firmware rev.	Firmware revision	OMNIPLUS-R 1.0.105	no
Application tag	Name of the application in which the device is used	***	yes
Function tag	Function of the device in the application	***	yes
Location tag	Position of the device in the application	***	yes
<<<	Leaves information mode		

6.8 Factory reset

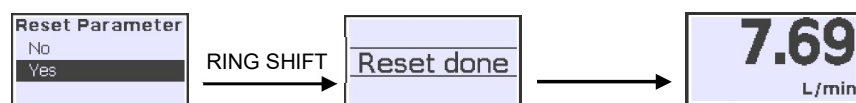
The menu item **Factory Reset** in the main menu allows you to reset the device to the factory settings.

First, a query appears.



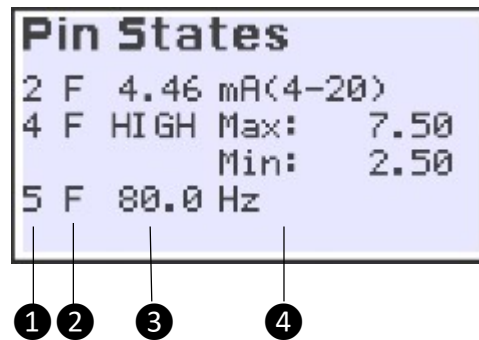
If the answer is **No**, the display returns to the main menu. No changes will be made.

If the answer is **Yes**, all parameters changed by the user are reset to the factory settings. The takeover is acknowledged by Reset Done. The display returns to the measured value display.



6.9 Display Pin States

The Pin States screen shows the current status of the three pins of the circular connector, which can be used as input or output (pin 2, 4 and 5, see also → 4.3).



- ① shows the pin number to which the information in the columns behind it applies.
- ② indicates the influencing measurement, usually an F for flow.
- ③ shows the current state of the pin (see tables below).
- ④ describes the function assigned to the pin in the configuration.

Display of pin 2

When the analog output is activated, pin 2 always has an F in the second column, since the analog output is always determined by the flow value.

Function	Display				Explanation
	①	②	③	④	
Current output 4 ... 20 mA	2	F	xx.xx mA	(4-20)	xx.x = Current output value
Current output 0 ... 20 mA	2	F	xx.xx mA	(0-20)	xx.x = Current output value
Voltage output 0 ... 10 V	2	F	xx.xx V	(0-10)	xx.xx = Voltage output value
Voltage output 2 ... 10 V	2	F	xx.xx V	(2-10)	xx.xx = Voltage output value
Voltage output 0 ... 5 V	2	F	x.xx V	(0-5)	x.xx = Voltage output value
Voltage output 1 ... 5 V	2	F	x.xx V	(1-5)	x.xx = Voltage output value
Voltage output 0.5 ... 4.5 V	2	F	x.xx V	(0.5-4.5)	x.xx = Voltage output value
No analog output active	2		OFF		

Display of pins 4 and 5

Functions available on both pins:

Function	Display	Explanation
	1 2 3 4	
Limit switch (single point)	4 F HIGH Min: 2.50 Hyst: 1.20	The switching status of the output is displayed (pin 4 = HIGH in the example). It is a minimum switch whose limit value is set to 2.50 with a hysteresis of 1.20. Falling below the limit value would be indicated by flashing Min: 2.50
Limit switch (window mode)	5 F LOW Max: 7.50 Min: 2.50	The switching status of the output is displayed (pin 5 = LOW in the example). The limits of the monitored window can be seen. Leaving the window would be indicated by flashing the value exceeded.
Frequency output	4 F xxx.x Hz	The current output frequency at pin 4 is displayed (up to 4 significant decimal places).
Output is switched off	4 OFF	Indicates that no function is assigned to the pin (pin 4 in example). The IO-Link functionality at pin 4 is still available.

Functions only available on pin 4:

Pulse output	4 F HIGH xxxxxL/pls t=50 ms	The switching state of the output is displayed (HIGH in the example). Behind it, the set pulse value and the pulse duration are noted.
Preset counter output	4 F LOW Preset cntr	The switching status of the output is displayed (LOW in the example). The Preset cntr function is noted.

Functions only available on pin 5:

Volume counter reset input	5 F LOW Σ Reset in	The state of the input is displayed (LOW in the example). The " Σ Reset in" function is noted.
Inversed pin 4	5 Inversed pin 4	The function as an inversion of pin 4 is noted.
Mirrored input signal	5 Sensor input signal	

7 IO-Link operation

If the device is operated in IO-Link mode, the parameterizations are carried out via the IO-Link interface or manual configurations are overridden.

For IO-Link operation, the IODD file and the interface description are available for download on the website

www.ghm-group.de

Note:

In IO-Link operation, pin 4 is used as an IO-Link communication interface, so the use as described in the chapter → 6.5.5 Parameter groups Pin 4 settings and Pin 5 settings bzw. → 6.5.5.1 Parameter Function is not possible.

On some IO-Link masters, PIN 5 is grounded. In this case, the device may issue the error message: "Short circ".

Before initiating IO-Link communication, pin 4 must be set to push-pull.

See → 6.5.5.2 Parameter Output Driver

8 Maintenance

8.1 Operation and maintenance instructions

The instruments are maintenance-free.

Upstream filters, if available, must be cleaned regularly

8.2 Repair

It is not possible for the operator to repair or overhaul the instrument on site. If a defect occurs, we recommend returning it to the manufacturer for analysis or repair/maintenance.

8.3 Troubleshooting

Display	Type	Description	Troubleshooting
No display	Error	<ul style="list-style-type: none"> Supply voltage too low Device defective 	<ul style="list-style-type: none"> Check supply voltage Replace the device
Hw fault	Error	Device hardware defective	Gerät tauschen
Temp overr	Error	<ul style="list-style-type: none"> Ambient temperature too high Device defective 	<ul style="list-style-type: none"> Identify and eliminate the heat source Replace the device
Short circ	Error	Short circuit on pin 4 or pin 5	Check installation
Simulation	Warning	Simulation active	Check the operating status (→ 0)
Flow low	Warning	Flow falls below setpoint value for pins 4 or 5	→ 0
Flow high	Warning	Flow exceeds setpoint value at pins 4 or 5	→ 0

9 Disposal

When disposing off the product, care must be taken to ensure that the product components and packaging are separated and recycled. The legal regulations and guidelines valid at that time must be observed.



NOTE

The product must not be disposed off in the residual waste bin. If the product is to be disposed off, take it to a municipal collection point, where it is safely transported to the disposal company in accordance with the requirements of dangerous goods law. Otherwise, please send it back to us with sufficient postage. We then take care of the proper, professional and environmentally friendly disposal.

GHM Messtechnik GmbH
GHM GROUP - Honsberg
Servicecenter
Tenter Weg 2-8
42897 Remscheid | GERMANY

WEEE Reg. No.: DE 93889386

10 Specifications

10.1 OMNIPLUS-RRI/RRH

	OMNIPLUS-RRI	OMNIPLUS-RRH
Measuring principle	Impeller with metal clips Detection with inductive sensor	Magnet-equipped impeller Detection with Hall sensor
Media	Water or other low-viscosity liquids	
Measurement uncertainty	±3 % of reading in specified measuring range	
Pressure loss	max. 0.5 bar	
Compressive strength	PN 16	PN 100
Media temperature	0...+60 °C	0...+70 °C
Ambient temperature	-20...+70 °C	
Storage temperature	-20...+80 °C	

Measuring ranges

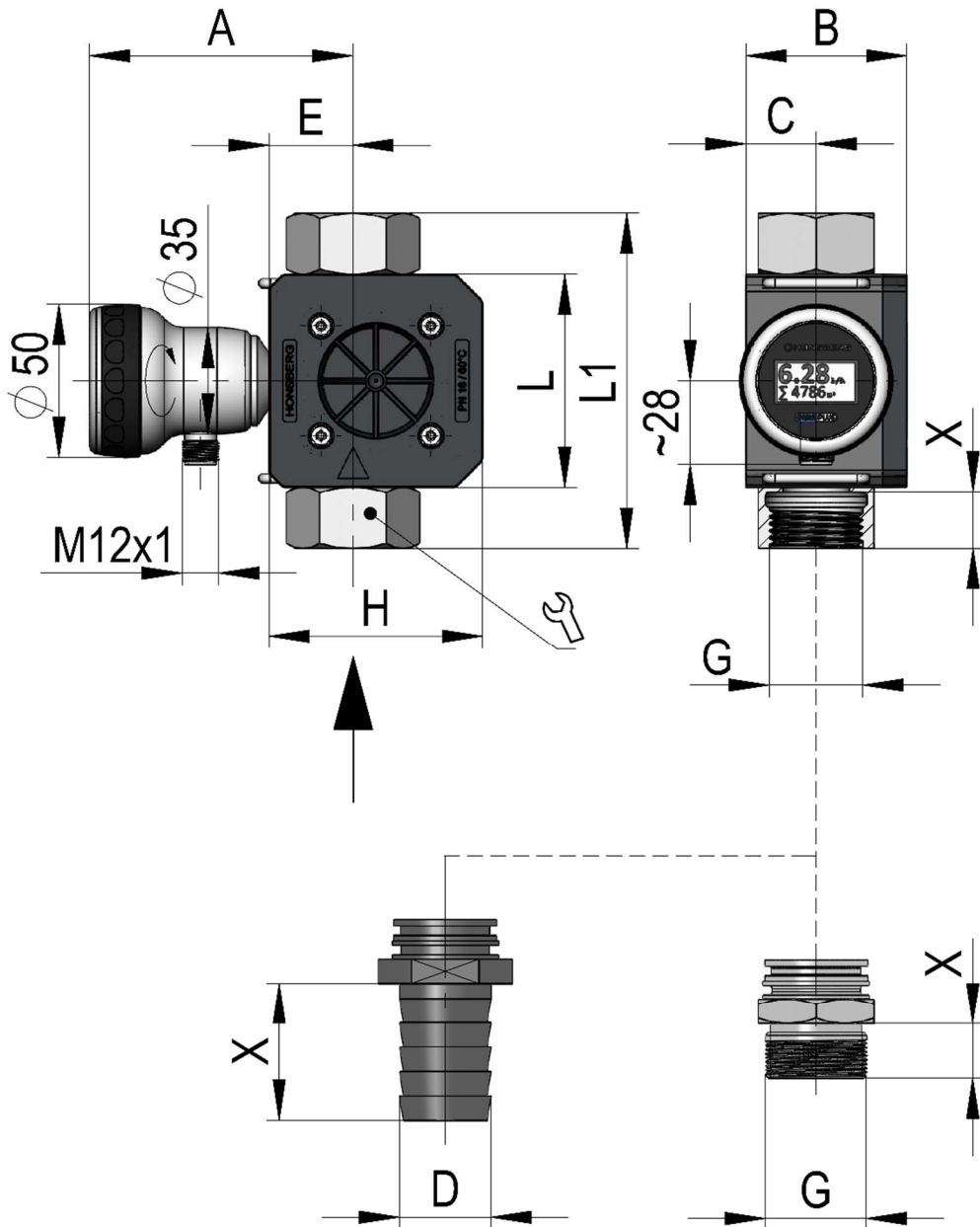
Type	Nominal size	Measuring range	Q _{max}
		l/min (H ₂ O)	l/min (H ₂ O)
OMNIPLUS-RR.-010...020	DN10	0.1... 1.5	1.8
OMNIPLUS-RR.-010...050		0.2... 10.0	12.0
OMNIPLUS-RR.-010...070		0.4... 12.0	14.4
OMNIPLUS-RR.-025...080	DN25	2.0... 30.0	36.0
OMNIPLUS-RR.-025...120		3.0... 60.0	72.0
OMNIPLUS-RR.-025...160		4.0...100.0	120.0

Materials (wetted by medium)

	OMNIPLUS-RRI	OMNIPLUS-RRH
Housing	PPS (40 % GF) optional: PVDF	CW614N (nickel-plated) or stainless steel 1.4305
Cover	as housing optional PSU (transparent)	as housing
Impeller	PVDF equipped with clips made of 1.4310 (optional: titanium)	PVDF equipped with magnets glued with epoxy resin
Bearings	Iglidur X	
Axle	Ceramic ZrO ₂ -TZP	
Gaskets	FKM optional: NBR, EPDM	

Dimensions and weights

Type	H/L	A	B	C	E	SW	G	D	X	L1	Weight	
											...RRI...	...RRH...
OMNIPLUS-RR.-010G	50	~75.5	29	12.5	16.5	22	G 3/8	-	12	84	ca. 0.25 kg	ca. 0.69 kg
OMNIPLUS-RR.-010A							G 3/8 A	-	10	84		
OMNIPLUS-RR.-010T							-	∅11	21	96		
OMNIPLUS-RR.-025G	70	~86.5	53	23	27.5	38	G 1	-	20	110	ca. 0.51 kg	ca. 1.95 kg
OMNIPLUS-RR.-025A							G 1 A	-	18	122		
OMNIPLUS-RR.-025T							-	∅30	45	176		



10.2 Measuring electronics OMNIPLUS

Supply voltage	18...30 V DC	
Current consumption	< 130 mA (SIO mode, unloaded outputs)	
IO-Link specification	IO-Link revision Bitrate Minimum cycle time SIO mode Port class Block parameterization Data storage	V1.1 COM2 (38400 Bit/s) 20 ms yes A compatible yes yes
Analog output	Output type configurable on the device: Current: 4... 20 mA / 0...20 mA Voltage: 0... 10 V / 2...10 V / 0...5 V / 1...5 V / 0.5...4.5 V	
Signal input	Reset input for volume counter (alternative to switching output on pin 5)	
Display	graphic 1.2 inch LCD (transflective) 128 x 64 pixels Backlight white, red when an alarm is displayed	
Electrical connection	Circular connector M12x1 / 5-pin	
Protection class	IP65 / IP67 (with connected M12x1 circular connector)	

Materials (not wetted by medium)

Housing	Stainless steel 1.4305
Front glass	Mineral glass hardened
Ring	POM
Connection piece	Nickel-plated brass
Gasket	FKM

11 Accessories

(not included)

Connecting cable

- Moulded M12x1 circular connector, 5-pin
- Not shielded
- PUR sheath

Order code	Length
K05PU-02-UG	2 m
K05PU-05-UG	5 m
K05PU-10-UG	10 m

12 Service

12.1 Manufacturer

If you have any questions, please do not hesitate to contact us:

GHM Messtechnik GmbH

GHM GROUP - Honsberg

Tenter Weg 2-8

42897 Remscheid | GERMANY

Mail: info@ghm-group.de

Fon: +49 2191 9672-0

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12.2 Repair processing

Defective products are repaired competently and quickly in our service center.

GHM Messtechnik GmbH

GHM GROUP - Honsberg

Servicecenter

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42897 Remscheid | GERMANY

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NOTE

Please enclose the completed return form with the product, which you can find in the information center of the website www.ghm-group.de.
