



Installation and Operating Instructions

GWF-Volume measuring meters

for heat measurement

1. Field of application

Type			Unico®	MTW	MTH
Pulser / Interface			IPG14	IPG14	IPG14
Nominal flow rate	q_p	m^3/h	0,6–2,5	1,5–15	1,5–15
Nominal diameter	DN	mm	15/20	15–50	15–50
Max. operating pressure	PN	bar	16	16/25 ¹⁾	16/25 ¹⁾
Temperature	T	°C	90/120	90	130
Ambient temperature	T _{amb}	°C	+5...+55	+5...+55	+5...+55

¹⁾with flanged connections

GWF volume measuring meters are used as a component to heat measurement. These instructions contain all important information for the installation and operation of the above mentioned volume measuring meters. Installation, connection and maintenance must only be carried out by expert technicians who, first of all, have read and understood the operating instructions.

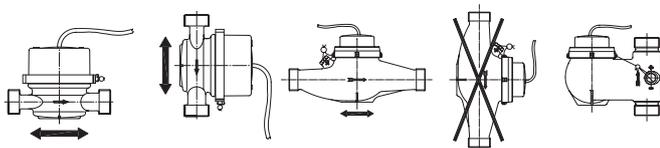
2. Sizing of the volume measuring meter

GWF volume measuring meters are to be sized according to the relevant ratings. A continuous overload will lead to the meter being damaged. With specifying the meter the operating conditions occurring in the application are to be considered. In particular these are:

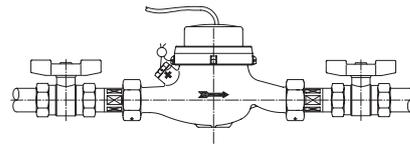
- Nominal flow rate
- Max. operating pressure
- Operating temperature
- Ambient temperature
- Installation position (Riser- or down / fall housing)

3. Installation information

1. Singlejet meters (Unico®) can be installed in horizontal or vertical pipe lines. Preferential, is the installation in horizontal pipe work. Multijet meters (MTW, MTH) can also be installed in horizontal and vertical pipe lines. For the installation in vertical pipe work, special meter housings are available. The meter type plate must always face upwards.



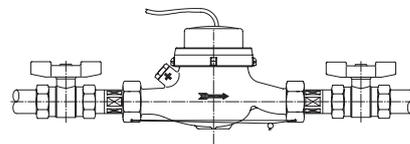
2. For volume measuring meters no inlet and outlet distances must be adhered to.
3. It is recommended to install shut-off valves before and after the meter, to facilitate the installation and removal of the meter for periodic inspection and maintenance work.



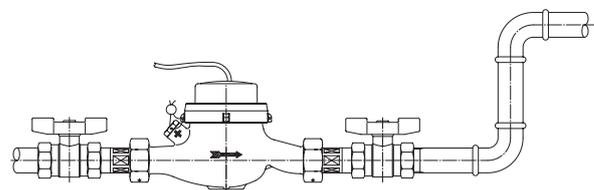
4. It is necessary to purge/rinse the pipe line before initial installation of the water meter. In place of the meter a bypass piece must be installed, so that foreign objects do not block the strainer of the meter. Thus, accurate measurement can be ensured.



5. Pay attention to the direction of flow when installing the meter. An arrow on the meter body indicates the direction of flow.
6. Before installing the water meter check if a clean strainer is inserted inside the inlet part of the water meter.
7. During installation it is important to check that the inside of the couplings / unions are clean, intact and correctly positioned seals / gaskets are used.
8. In order to prevent unauthorized manipulation of the water meter the couplings / unions can be secured by means of a wire and seals against tampering.



9. Excessive force when tightening the couplings / unions of the meter must be avoided in order to prevent damage being caused to the housing of the meter.
10. In order to guarantee correct measurement, it is very important to ensure that no air can enter the water meter or that the pipe line is allowed to run dry.



11. With many installations water pipelines serve as earthing for electrical systems. Depending on the actual application an electrical bypass of the volume measuring meter is to be ensured.
12. The meter should be protected against mechanical jolts or vibration, which could be present in the installation place.
13. The pipeline of the heating system should be securely fastened before and after the meter.
14. Measures should be taken, so that the meter is not damaged by hydraulic influences such as, pressure shocks and cavitations. Additionally it should be guaranteed that the meter is not damaged due to frozen water being encountered.
15. Signal (pulse output) wiring should never be laid together with mains power lines and must be independently protected. The distance between signal (pulse output) and mains power line must be a min. distance of 50mm.
16. Signal wiring between parts of a heat meter are to be positioned in such a way that they are secured and/or shielded against disturbances (motors) and unauthorized interruptions.

4. Commissioning

During commissioning and after every time the meter has run dry, shut-off valves must be opened slowly in order to avoid pressure shocks on the meter.

5. Maintenance and service

GWF volume measuring meters are maintenance free under normal operating conditions. They excel in that they have a long life span. The life span essentially depends on the water quality and on the conditions and capacity of flow. We recommend however to examine the following points periodically.

1. Before working on the installation, it is to be examined whether the pressure is relieved in the pipe line.
2. When the water supply is closed, all the pointers of the register should stand still. When the water supply / inlet is slowly opened the pointers should begin to turn-over evenly and slowly.
3. If the supply network is subject to dirty conditions, it is recommended, to clean the strainer on the inlet of the meter on a regular basis.
4. The stamp on the lead seal should be verified if it is in tact.
5. It should be verified that all shut off valves before and after the meter are fully opened, and if they can be closed and there are no leaks present.
6. The meter and pipe work of the installation should be checked for leaks.
7. Check to see that the environment, in which the meter is installed, is devoid of water, where dripping water onto the register could lead to water ingress.
8. Pay attention that the meter connections are securely attached and that all pipe lines are undamaged and intact.
9. It should be verified that the ambient temperature lies within the admissible temperature range of the heat meter.

Basis for the installation, commissioning, monitoring and maintenance of volume measuring meters is the EN 1434, part 6 – heat meters.

6. Disassembly and disposal

It should be ensured that the volume measuring meters are disposed of in a recycling just manner.

7. Installation with anti-icing agents

GWF volume measuring meters can withstand installations where these anti-icing agents Ethyl glycol and Propylene glycol are present. The measuring dynamics are however influenced depending on the concentration:

1. Up to 5% anti-icing agent there is no influence on the measuring dynamics.
2. Up to 30% anti-icing concentration the q_i value is doubled. The degradation takes place proportionally.
3. If the concentration is greater than 30%, we do not recommend the application of our meters in these situations.

8. Safety guidelines

1. The volume measuring meters should always be handled only on the meter housing and should not be carried by either the lid or pulser cable.
2. The devices may only be used for the intended purpose. GWF MessSysteme AG guarantees in the context of the general trading conditions the quality of its products. The responsibility for the correct installation as well as professional handling falls within the scope and receipt of goods on the owner or operator.

9. Technical data IPG14

Switching element	Reed	
Switching voltage	U_{max}	42V AC/DC
Switching current	I_{max}	100mA
Switching capacity	P_{max}	4W
Resistor	R	18 Ohm
Conductor cross section	0,14mm ²	
Switching cycles	app. 10 ⁷	

CE	EU declaration of conformity
	<p>GWF MessSysteme AG, Obergrundstrasse 119, CH-6002 Luzern Volume measuring part for heat meter MTW3... MTH3... Unico2... CE [Mxx] 1259 CH-MI004-07004, CH-MI004-07003 2014/32/EU – MID www.metas.ch/certsearch EN 1434-1:2015 CH-MI004-07004 / CH-MI004-07003, MID – 2014/32/EU Annex II, module B Eidgenössisches Institut für Metrologie, METAS-Cert CH-3003 Bern-Wabern, Notified Body 1259 MID – 2014/32/EU Annex II, module D Eidgenössisches Institut für Metrologie, METAS-Cert CH-3003 Bern-Wabern, Notified Body 1259</p>
<p>We declare as manufacturer: Products labelled accordingly are manufactured according of the listed Directives and Standards. They correspond to the tested type samples. The production is subject to the stated surveillance procedure.</p>	
<p>01.07.2018</p>	
 Markus Helfenstein Head R&D	 Urs Imholz CEO Switzerland