

# Online water content measurement device

Type WGM07

RE 51438

Edition: 2021-04



- ▶ Nominal pressure 40 bar [580 psi]
- ▶ Analog output 4...20 mA
- ▶ Water activity  $a_w$ :  $\pm 0.02$  (0...0.9)  
 $\pm 0.03$  (0.9...1.0)

## Features

The online water content measurement devices allow the water activity in hydraulic and lubricating oils to be monitored online quickly and reliably.

They distinguish themselves by the following:

- ▶ Permanent measurement of the humidity and temperature
- ▶ Fast display of changes
- ▶ High measurement accuracy and measurement stability
- ▶ Simple connection to an external control system
- ▶ With ball valve installation, switching off the process or draining the oil is not necessary

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**Ordering information for online water content measurement device**

01	02	03
<b>WGM07</b>	-	-

**Series**

01	Online water content measurement device	<b>WGM07</b>
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**Version**

02	Standard version consisting of: - Sensor for determining water activity and temperature - Integrated LC display - Sensor cable, length 2 m - Sensor protection (stainless steel grid) - Serial interface RS 232 C - Analog output signal: 4...20 mA Channel 1: 0...1 Channel 2: 0...+100°C - Measurement for analog output Channel 1: water activity $a_w$ Channel 2: oil temperature T in °C	<b>1</b>
	Like version 1, but with sensor cable, length 5 m	<b>2</b>
	Like version 1, but with sensor cable, length 10 m	<b>3</b>
	Like version 1, but without display	<b>4</b>
	Like version 2, but without display	<b>5</b>
	Like version 3, but without display	<b>6</b>

**Supply voltage**

03	220 V	<b>1</b>
	24 V	<b>2</b>

**Order example:****WGM07-1-1****Material no.: R928027995****Preferred types**

Material no.	Online water content measurement device
R928027995	WGM07-1-1
R928028814	WGM07-3-2

## Ordering information for accessories

### Ball valve installation kit

01	02	03
<b>Z</b>	<b>WGM</b>	<b>- KHI</b>

01	Accessories	<b>Z</b>
02	Water content measurement device	<b>WGM</b>
03	Ball valve installation kit	<b>KHI</b>

#### Material number

Material no.	Ball valve installation kit
R928028819	ZWGM - KHI

## Function

The WGM07 oil humidity and temperature measurement encoder allows fast and reliable measurement of the humidity content in oils.

The devices are used to monitor humidity in real time and to control dryers and oil conditioners so that they are only activated as needed. Efficient monitoring helps to save oil and is good for the environment. With the WGM07, the humidity content in oil can be monitored simply and cost-effectively.

### Measurement of the water activity

The WGM07 measures the oil humidity in the form of water activity ( $a_w$ ) and also the oil temperature (T). The water activity is a direct indicator of whether there is a risk of water separation as a phase. The measurement is carried out independently of the type, age and temperature of the oil.

### Calculation of the water content

The WGM07 indicates the water activity ( $a_w$ ) and oil temperature (T). It is possible to calculate the average mass concentration of water in oil in ppm using this information. For this purpose, only the oil-specific conversion coefficients have to be determined.

**Technical data**

(For applications outside these parameters, please consult us.)

<b>General</b>		
Ambient temperature range	°C [°F]	0 ... +60 [+32 ... +140]
Storage conditions	°C [°F]	-40 ... +65 [-40 ... +149]; max. relative air humidity 65%
Mass	kg [lbs]	approx. 2 kg [4.4]

<b>Measurements</b>		
Measuring point		Piping with flows up to 40 bar [580 psi] or turbulent tank installation location
Response time	min.	10

**Water activity**

Measurement range	a <sub>w</sub>	0...1
Accuracy	a <sub>w</sub>	0...0.9 +/-0.02 0.9...1 +/-0.03
Sensor		Capacitive thin-film polymer sensor

**Temperature**

Measurement range	°C [°F]	0...+100 [+32...+212]
Accuracy	°C [°F]	+/- 0.2 [0.36]
Sensor		Pt100

**Electrical connections**

Analog output	mA	4...20
Supply voltage	V	10 ... 35 VDC, 24 VAC ± 20%
Current consumption at +20°C [68°F] (U <sub>in</sub> 24 VDC) I <sub>out</sub> 2 x 0...20 mA	mA	max. 60
Display with lighting	mA	+20
Housing protection class	IP	65
Sensor protection		Stainless steel grid filter
EMC		as per EN61326-1, industr. requirements

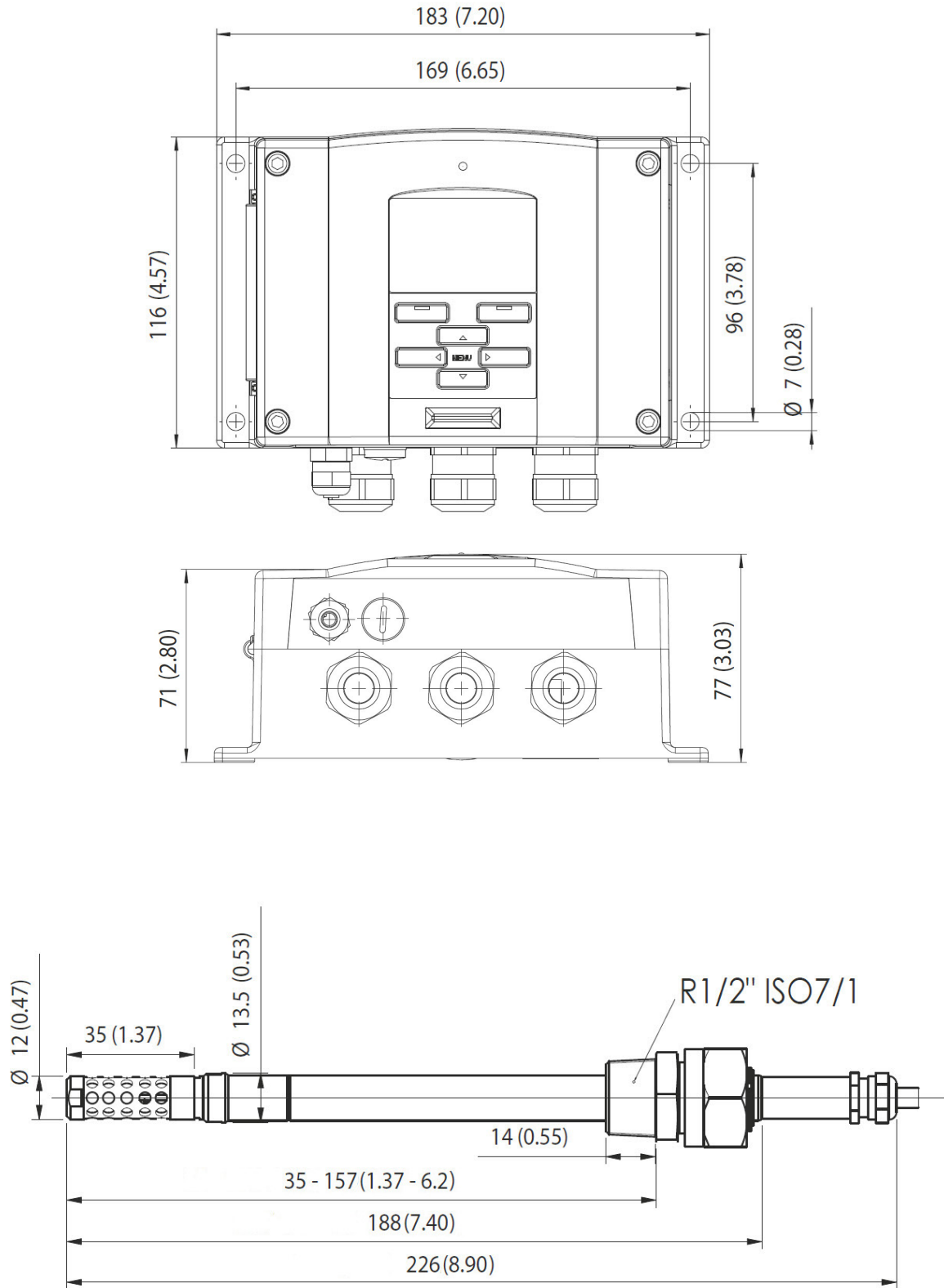
**Compatibility with permitted hydraulic fluids**

<b>Hydraulic fluid</b>	<b>Classification</b>	<b>Standards</b>
Mineral oils	HLP	DIN 51524

**Important information about hydraulic fluids:**

- For more information and data on the use of other hydraulic fluids, please refer to data sheet 90220 or contact us.

**Dimensions**  
(in mm [inch])



## Assembly, commissioning, maintenance

### Assembly

The maximum operating pressure at the selected place of installation must not exceed the permissible operating pressure of the sensor.

When installing the sensor, ensure that the flow velocity does not exceed 1 m/s [3.3 ft/s].

With the optional ball valve installation kit, it is possible to remove or install the sensor during system operation without having to drain the oil.

### Commissioning

Electrically connect the sensor.

Important: when using the ball valve installation kit, leaks will occur when removing or sliding in the sensor.

### Warning

Hot oil can cause burns when removing or sliding in the sensor.



#### **Important:**

- ▶ All work on the device must be performed by trained specialists only.
- ▶ Warranty becomes void if the delivered item is changed by the ordering party or third parties or improperly mounted, installed, maintained, repaired, used or exposed to environmental conditions that do not comply with the installation conditions.

## Notes

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