

Online water content measurement device

Type WGMS

RE 51439

Edition: 04.21



WGMS_MN_sw

- ▶ Nominal pressure 40 bar
- ▶ Analog output 4...20 mA
- ▶ Water activity a_w :
 - ± 0.02 (0...0.9)
 - ± 0.03 (0.9...1.0)

Features

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	04
WGMS	-	-	2

Series

01	Online water content measurement device (without display)	WGMS
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Version

02	Standard version consisting of: - Sensor for determining water activity and temperature - 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	4
	Like version 4, but with sensor cable, length 5 m	5
	Like version 4, but with sensor cable, length 10 m	6

Supply voltage

03	24 V	2
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Amending information

04	Ball valve installation kit	K
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Order example:

WGMS-4-2

Material no.: R928022617

Preferred types

Material no.	Online water content measurement device
R928022617	WGMS-4-2
R928022618	WGMS-5-2
R928022619	WGMS-6-2

Ordering code accessories

Ball valve installation kit

01	02	03
Z	WGM	- KHI

01	Accessories	Z
02	Water content measurement device	WGM
03	Ball valve installation kit	KHI

Material number

Material no.	Ball valve installation kit
R928028819	ZWGM - KHI

Function

The WGMS 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 WGMS, the humidity content in oil can be monitored simply and cost-effectively.

Measurement of the water activity

The WGMS 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 WGMS 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 values, please consult us!)

General		
Operating temperature range	°C [<i>°F</i>]	0... +60 [<i>+32...+140</i>]
Storage conditions	°C [<i>°F</i>]	-40 ... +65 [<i>-40 ... +149</i>]; max. relative air humidity 65%
Weight	kg [<i>lbs</i>]	approx. 1.5 kg [<i>3.3</i>]
Measurements		
Measuring point		Piping with flows up to 40 bar [<i>580 psi</i>] or turbulent tank installation location
Response time	min.	10
Water activity		
Measurement range	a _w	0...1
Accuracy	a _w	0...0.9 +/-0.02
		0.9...1 +/-0.03
Sensor		Capacitive thin-film polymer sensor
Temperature		
Measurement range	°C [<i>°F</i>]	0...+100 [<i>+32...+212</i>]
Accuracy	°C [<i>°F</i>]	+/- 0.2 [<i>0.36</i>]
Sensor		Pt100
Electrical connections		
Analog output	mA	4...20
Supply voltage	V	10 ... 35 VDC, 24 VAC ± 20%
Current consumption at +20 °C [<i>68 °F</i>] (U _{in} 24 VDC) I _{out} 2 x 0...20 mA	mA	max. 40
Housing protection class	IP	65
Sensor protection		Stainless steel grid filter
EMC		as per EN61326-1, industr. requirements

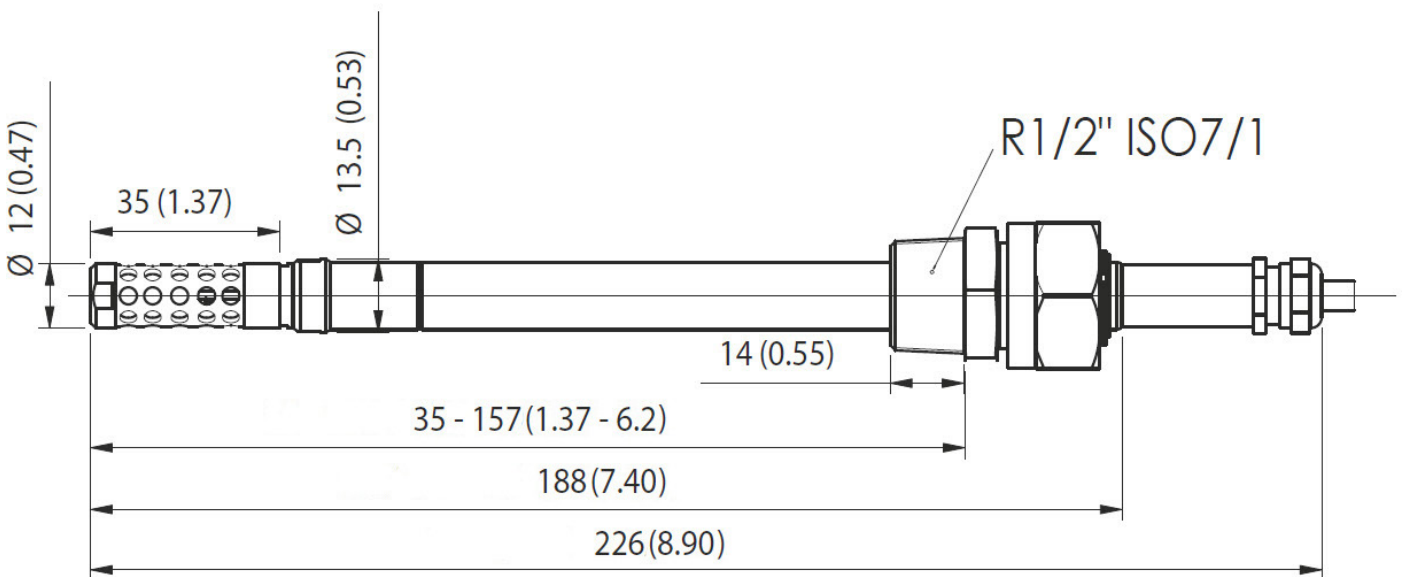
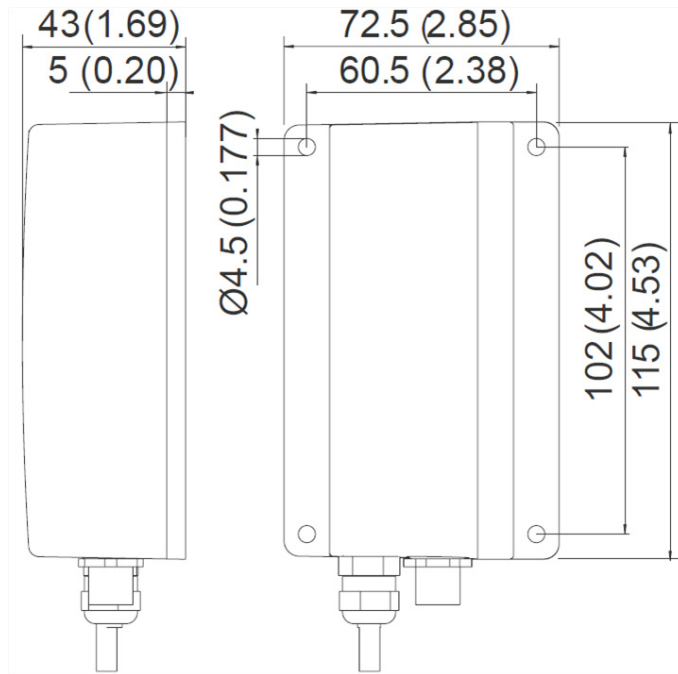
Compatibility with permitted hydraulic fluids

Hydraulic fluid	Classification	Standards
Mineral oils	HLP	DIN 51524

**Important information on 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.

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 inserting the sensor.

Warning

Hot oil can cause burns when removing or inserting the sensor.



Note:

- ▶ 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 condition that do not comply with the installation conditions.

Notes

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